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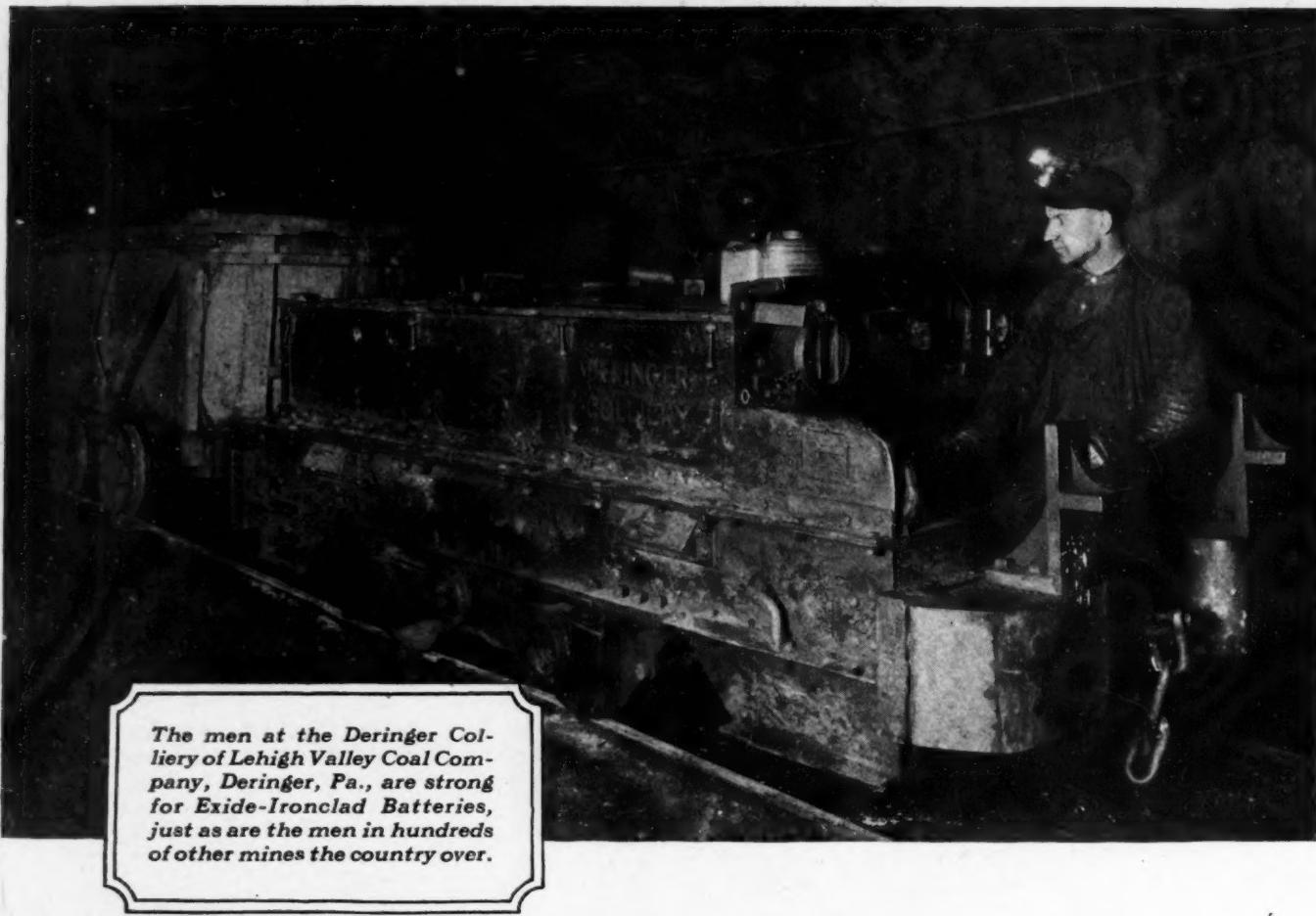
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COAL AGE

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Assistant Editors
PAUL WOOTON
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With which is consolidated "The Colliery Engineer" and "Mines and Minerals"
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Saved!

Twenty Cents a Ton

CUTTING 20 CENTS A TON from the mine cost of coal without changing the wage scale is an achievement. Any coal operator will agree to that. Yet it can be done. It has been done. Next week Frank H. Kneeland, associate editor of *Coal Age*, tells just how they did it in the big mine of the Valier Coal Co. in southern Illinois—a mine that held the world's record for daily tonnage during a brief period in 1924.

They spent only about \$48,000 for new equipment and reconditioning of the mine last year, but the results produced by the expenditure, plus a lot of good headwork in the matter of management and inspection, made a big cut in the total cost of the mine's output even though the total production for the year and total running time both were reduced by force of circumstances beyond the control of the company. This makes the result the more noteworthy.

Out of 5,000 bituminous mine chiefs in this country, there will be 5,000 who will want to know in detail just what the Valier folks did. Mr. Kneeland comes home from a western trip with a whole mass of that very detail. He writes about changes in bottom layout, the introduction of automatic switches, the regrading of main haulage lines, the conversion of the mine's system of lubrication, a new trick in the distribution of cutter bits, a scheme of car control under the tipple, a new car dump at the wash house which alone saves \$1,372 a year, and a lot of other improvements, little and big, which combined to produce results.

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COAL AGE

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Devoted to the Operating, Technical and Business
Problems of the Coal-Mining Industry

R. DAWSON HALL
Engineering Editor

Volume 28

NEW YORK, OCTOBER 29, 1925

Number 18

Supposings

UNDER A THREAT to start municipal coal yards, it is said, the retailers of New York have consented to lay in a supply of soft coal, despite all anticipated danger that the strike might be settled and the coal left on their hands, a consummation not immediately to be hoped or to be feared.

Now supposing these retailers had been mine workers—they would have made the municipal authorities afraid of executing any such move by sundry burnings and bombings, shootings and slayings,—and then they would not have had to bow to coercion.

But these are mere "supposings." They serve the purpose of showing how amenable business is to pressure and how difficult it is to coerce labor. The retailers, facing possibilities of a real loss, have done their duty and have agreed to lay in soft coal. The public will please remember that it must see that this action is not accompanied by loss. It should not leave coal on the retailers' hands after the suspension is over. It seems likely, however, that if the soft coal is used for a few months or more there will be no difficulty in getting rid of a surplus, for some, perhaps many, will be permanently wedded to the new fuel.

Apprenticeship as Proof of Skill

A CERTAIN New York paper says, "Hard coal mining is a skilled trade. Pennsylvania laws specify a certain length of apprenticeship before the miner can be licensed to dig coal." Because this law perpetuates this conception is one reason among many for its abolishment. Hard coal mining is not a skilled trade. For many years men fresh from European farms who knew no English and had no preliminary training went into the mines and did well from the start.

A little preliminary training of say a day's duration and a little knowledge of English is what is needed and not the licensing system which is a relic of the ancient system of apprenticeship which had no excuse except where a real art had to be acquired. All that is learned from the miner with whom the laborer works could be acquired in a day. We do not say, of course, that what is learned is all that a miner should know. Somewhat more than a day, indeed, might be given to that instruction.

In some cases the miner's advice and instruction when given is unfortunate and misleading. Many bad practices are advocated and even urged on the neophyte. A day's instruction by a safety inspector would be far more efficient. The relation of miner and mine laborer is largely a case of privilege, the laws of Pennsylvania being used to keep one man subservient to another.

It has been well said that the work of the metal miner is more expert than that of the anthracite miner. That is frequently though not universally true. Yet in so far as it is true, it is interesting to note that no one has as yet advocated the licensing of metal miners.

When Winter Comes

A WELL TIMED WARNING has been sent out by Joseph J. Walsh, the Secretary of Mines, of Pennsylvania, to all bituminous coal operators warning against the dangers of the winter, calling for the lavish use of water or rock dust in all dry mines throughout the cold weather, and bringing to the attention of operators the fact that "thousands of gallons of water are each day carried in the air current from a single mine."

Strong effort should be made to prevent the recurrence of mine explosions during the coming winter. This is not a matter to be regarded as purely personal. Each operator has a large interest in the safety of other mines than his own. The reputation of one operating concern reflects honor or discredit on all the others in the same business. Safety is a matter the coal industry cannot ignore.

The public forgets that the coal man probably has done more than any other industrialist to promote safety, but it wrongly believes that coal mining is the most hazardous of occupations and blames the operator in part for that fact. Nothing will do more to make treating with the public easy than to be able to show that the interest of the operator in safety is making the mines safer year by year.

The action of the National Coal Association in forming a safety committee and its activity in interesting the membership in safety work is one of the gratifying signs of the times. Operators everywhere should stage safety. A definite propaganda should be started to that end. In fact not only the National Coal Association but every local producers' association and every local technical institute should have a safety committee and busily promote safety.

Bettering Ventilation

AS MINES EXTEND and the passages become longer the problem of reducing the air resistance becomes insistent, but in many cases a little patient effort at improvement will make it possible to fit conditions to the existing fan.

Thus when swags have been encountered and water gathers, the roof rock should be brushed so as to fill the space occupied by water, thus leaving room in which the air can travel. In general, also, a little shooting that will result in an even and uniform airway will be found advisable. Especially should care be taken in places where the larger volumes of air have to circulate, such as between the fan and the first or second splits. At such places every effort should be made to provide for large volume, smooth walls and rounded corners.

A little projected concrete on the ribs and roof will aid in preventing the formation of wasteful eddy currents and if this coat is made strong enough to make timbering unnecessary or to blank the spaces between timbers the gain will be considerable. The importance of all work should be rated on the volume of air to be

carried per lineal foot of perimeter. Where this ratio is large, smoothness and straightness of the airway is imperative.

At overcasts the fallen rock may be so rearranged as to aid the current of air in sweeping gently up to the overcast and gently down on the other side. At best such places are points of resisted flow even though in construction a proper talus has been built on both sides of the roadway. This talus can scarcely be made too long and, if rock falls make possible its extension on either side, advantage should be taken of that.

There are two ways of amending ventilation, in the equipment and in the mine. The opportunities in the latter are often overlooked. Sometimes the fact that airways badly laid out, swags undrained and passages cluttered with rock reflect on the management causes the mine officials to favor new fans. The question should be determined on its merits, but not without a careful inquiry into the real conditions and the possibility of ultimate saving, remembering always that more air without more area means more power consumed by the fan.

Service Pays

SOME YEARS AGO certain street-car companies purchased equipment with furnishings as elaborate as are now found in our most luxurious buses. However, some street-car magnates thought that it was not well to pamper the public by such innovations. They might have to scrap a lot of other valuable equipment and buy in its place elaborate street cars that would be more costly and perhaps less economical of space and weight. Thus reasoning, the expensive equipment was shipped to South American street railroads which could be allowed to indulge in luxuries without harm to the American corporations.

In justice to the street-car companies it should be said that they were for a long time quite generally kept to old standards of price and could hardly be expected to adopt new standards of practice under those circumstances, and that the cushions are not so necessary in street cars on a track as in buses on an uneven road. Furthermore cushions are not durable, are readily cut and insanitary.

But, be these reasons of the street-car magnates valid or not, the buses profit by the hard seats and dingy coaches that the street railroads of the United States have provided for their patrons, and now the tendency is to try to win back the public to the street cars by making them just as seductively comfortable and alluring as the buses. What has all this, however, to do with coal? Just this: The anthracite region has been trying to prevent the consumer from being spoiled. He had got accustomed to slate and bone in his coal. He was complaining, but he had shown signs of convincing himself that anthracite would always be that way, and as the industry was not actively competitive it did nothing to improve its practices. But now oil comes, and coke and bituminous coal and even gas, and the operator is not so sure.

Perhaps he has erred as the street car industry did when it allowed the bus to become synonymous with pleasing, fresh paint, comfortable leather cushions and clean windows. Perhaps a better preparation might have preserved a market that seems on the point of leaving the anthracite industry. Perhaps, after all, the public would feel a little more kindly and a little less

ready to run for substitutes if the service of anthracite had been a little more satisfactory.

An industry rarely really awakens till it is too late. The sleeper seldom ends his doze just at the psychological moment.

Cleaner, better-sized, coal is one of the means to win back a trade that now seems likely to be lost, but unfortunately the standards have been set low, and the industry cannot yet realize that these standards should be improved, if not as a matter of regard for the consumer, at least as a means of retaining control of a market that is fast being weaned and driven away.

When the mines start once again, each individual operator can elevate his standards. That would help a little, but, if the anthracite producers really desire to regain what they have lost and retain what they now have, they must go farther. They must see that the public knows of their good works. They must encourage the retail distributors to hold them to strict accountability for the quality of their preparation. In that way they can protect the reputable majority and make more stony the path of the dishonest retail fringe that has regard for neither the industry nor the public and that blandly mixes a car of fireproof coal with a car of high-grade fuel and offers it to the public as standard quality.

The industry should fight the indiscriminate mixing of coal as energetically as the oil producing companies are fighting the selling of an inferior article at the stations where their gasoline is vended. Perhaps, as has often been suggested, certification of all anthracite coal by an independent authority would be a cure for the present unfortunate situation.

Taking the Long View

NO INDUSTRY, especially that of producing and marketing coal can safely take a short view of its responsibilities. If the future is to be fortunate, its problems must be foreseen. We must earn a good horoscope if we are going to enjoy it.

Unfortunately, too many regard only the present. If they can attain an immediate end they will take the short way to accomplish it and sometimes they are not too scrupulous as to what methods they adopt.

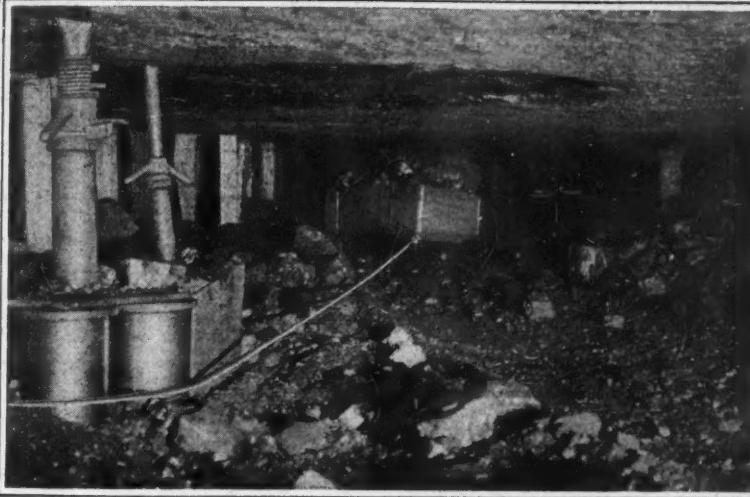
A certain degree of success by such evil methods is often attained. The miners terrorize a region and obtain advantages, only to find, after awhile, that "hard-boiled" operators alone remain in the field to do business. The more humanitarian and kindly mine owners sell out and go to other fields or change their manner of approach, and the hard or hardened men remain to make both mining and operating in the region difficult.

Nor is it different with the "hard-boiled" operator. He gets his way for a while. But quietly his best men leave and only those whom no one else will have remain. He has to take the leavings of other and better men's camps. He saves money on houses, fences, sidewalks, roads, bathhouses and safety to lose in personnel an even greater sum and to raise up difficulties that will plague him for many years.

The past is part of the present and a part also of the future. There is that in history and annals that never seems to die. For this reason, look ahead! If you wish a fortunate future in your industry and in your plant remember that you face in the present a summation of the whole past.

Scraper Loaders Cut Cost in Two Hazard Mines

Do Well in Thin Coal and Dipping Seams so Operators Try V Faces, Wide Rooms and Blocks



By Alphonse F. Brosky
Assistant Editor, *Coal Age*,
Pittsburgh, Pa.

TWO MINING companies in southeastern Kentucky are proving that in thin beds of clean coal the scraper loader fitted to a system of rather long faces produces a considerably larger output per man-shift than is obtained by hand loading in conventional systems. They are demonstrating that a scraper loader will produce coal at least as cheaply from, say, a 30-in. bed as will hand loaders from a 42-in. bed, other conditions being equal.

These comparisons, which are actual, have been made without considering the indirect savings in such overhead cost items as housing facilities, track, wiring, etc., attributable to successful loader operation by reason of higher tonnages per man and greater concentration of mining. The inference is not intended that the scraper loader is adaptable only to thin beds for it has its applications to thick measures as well.

In the mine of the Ajax Coal Co., on Trace Fork, about four miles north of Hazard, Ky., two Goodman, Type 136, "Entryloader" scrapers have been in use for ten months. Three months ago the neighboring operation of the Darb Fork Coal Co. installed a similar machine. All three loaders are at work in the Hazard No. 4 bed which ranges in thickness from about 30 to 42 in., averaging about 38 in. The coal in these mines is clean from floor to roof and although comparatively soft, is tough. The floor is of hard, smooth slate which provides an excellent surface on which the scraper scoop travels. Incidentally the coal separates readily from this bottom material so that digging of the bottom is not a problem.

Massive blue slate of varying thickness forms the roof above the bed. On top of this slate is a stratum of sandstone about 5 ft. thick and above this is a lamination of shales and sandstones of undetermined thickness. The maximum depth of cover is about 1,500 ft. and the average between 400 and 500 ft.

Room-and-pillar layouts are employed for the recovery of coal by hand loading in these two mines. In the Ajax operation cross entries divide the coal into blocks 300 ft. wide. One half of the block is recovered advanc-

ing by 20-ft. rooms on 40-ft. centers. Room driving terminates at a point 150 ft. from the entry, after which robbing of the room pillar commences. The last half of the block is recovered in the retreat. In the Darb Fork mine the same general method is used except that the rooms are driven 24 ft. wide on 50-ft. centers.

The blue slate roof and the upper measures of the cover do not interfere with systematic recovery of the coal. Rooms as wide as 25 ft., or more, can be driven without much timber support. Breaks occur regularly and with little disturbance behind straight pillar lines in areas where the coal is mined completely. These experiences and the fact that the Hazard No. 4 bed is clean in these mines influenced the managements to begin loading coal with scrapers. Low coal and unfavorable room grades in parts of these mines make haulage cost excessive and sometimes prohibitive. The scraper loader gave promise—which it has since fulfilled—of simplifying haulage problems and enabling the recovery of the thinner coal.

USED WITH LONG FACES

In a system of narrow rooms and pillars, of course, the scraper loader cannot be used to the greatest advantage. Consequently, all experiments in the Ajax mine have been with faces more or less long. While special development was being projected, two experiments with wide rooms and wide pillars were completed. In the first, a 120-ft. room face was mined advancing to a depth of 200 ft. The loading station was located on the cross-entry haulway and at one extremity of the face. The scoop was made to sweep the face and thence to traverse a dragway leading to the loading station on the entry. This dragway was protected by solid coal on one side and by rows of timbers on the other. The mined-out area in the wake of the advancing face was similarly supported.

Next, a 60-ft. room was driven to a depth of 200 ft. in a section of solid coal 300 ft. wide between cross entries, the latter being protected by 50-ft. barriers. From the side of this room a pillar 120 ft. wide was attacked from the rear and mined between the barrier limits in the retreat. Two sets of such rooms and pillars were mined in this way; but as these were not worked simultaneously, neither the loading machine, the undercutter nor the men worked during a fair part

So strong is the roof over the Hazard No. 4 seam in the Darb Fork mine that a dragway 20 ft. wide, as shown in the headpiece, is maintained in the robbed area leading back from the advancing face. Under few roofs could this be done. The camera set-up is on the face and in the path of the loaded scraper which is seen departing toward the entry. The two vertical pulleys held by the jack post, on the left, constitute the deflector around which the scraper swings in a right-angle turn.

of an 8-hr. shift; and the efficiency of each was rather low. Despite these handicaps the overall efficiency in these experiments, as measured by dollars and cents, was equal to that of hand loading for the entire mine.

The company was encouraged by the results of the first experiments, having mined a body of coal thinner than the average, which pitched to a greater degree than usual, under conditions impossible for hand loading methods. Not only was the cost per ton of this thin coal comparable to that of hand-loaded coal produced under the best conditions but a higher percentage of block was obtained. However, the company did not carry these experiments far enough to ascertain any marked advantage or disadvantage of the principles involved.

In the meantime the development of special loading-machine places was completed. The third experiment was carried out in a layout of V faces, inspired by the success attained with V faces and scraper loaders by the Black Diamond Collieries Co., Coal Creek, Tenn., in a bed of practically the same thickness.

In the Ajax mine the V faces were developed as indicated in Fig. 1. A 14-ft. dragway had been driven by hand loading to a depth of 250 ft. in a 300-ft. block of coal between cross entries. From each side of this dragway a block of coal, 100 ft. wide and 200 ft. long, was extracted by converging V faces, which were pocketed in the solid, leaving a 50-ft. barrier to protect each cross entry.

To develop these faces to their limits, successive cuts were "fanned out" in the manner indicated on the right side of the dragway. Having once established the V face to its full length, on an angle of about 28 deg. with the course of the cross entries, uniform cuts were made until the limit of the outby barrier was reached. Two places were worked in accordance with this plan, using one machine for each.

The disadvantages of this scheme were fully developed by the time these two places were worked out. The necessity of leaving the two barriers to protect the cross entries interfered with the successful operation of the panel. The inadequacy of ventilation in this system was another stumbling block. It was found that the development of V faces out of the solid could not be done economically with the scraper loader.

Straight-line faces could not be maintained during the pocketing operations and the natural tendency of the

**FIG. 1
V-Face Panel
In Ajax Mine**
In this layout the V faces are pocketed in the solid by successive cuts which are "fanned out" from the solitary development entry. No saving was effected by this plan of mining. Ventilation was difficult and other troubles were numerous.

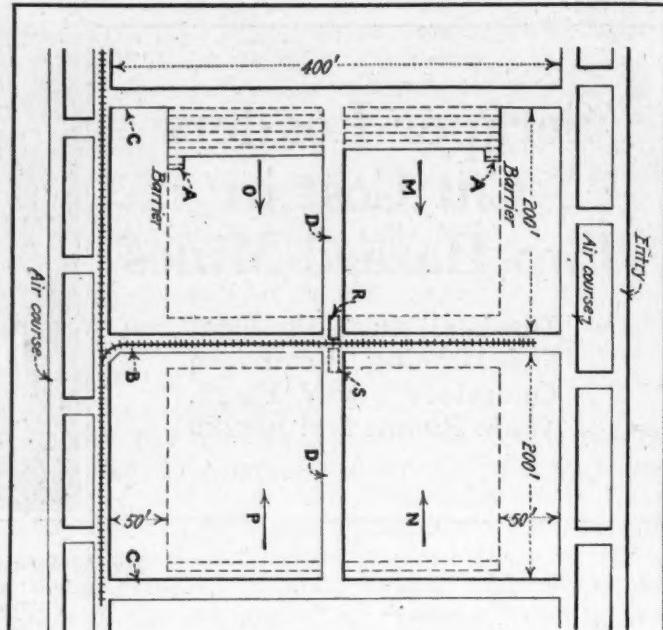
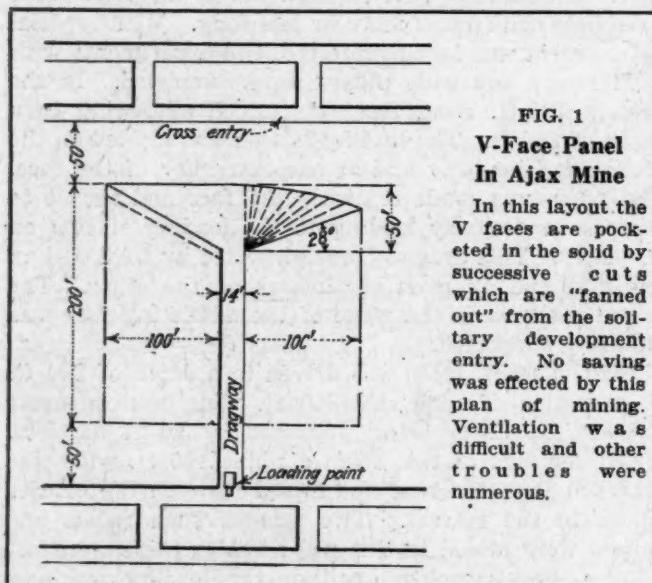


Fig. 2—Two-Face Block Layout

The virtue of this proposed plan is that the loading station and storage track are located in the clear of the cross entries avoiding haulage interferences. Incidentally, a comparatively large area can be mined without having to move the equipment, thus providing concentration.

cutting machine crew was to round off the barrier face and to decrease the angle between faces at the mouth of the dragway, due entirely to the impossibility of tapering the cuts uniformly. When these faces were once developed, however, no further difficulty was experienced until, in the retreat, they met the outby barrier projection when again trouble was encountered in squaring up the barrier.

Two other layouts are now under consideration. The first is shown in Fig. 2. Cross entries will be driven at intervals of 400 ft. The area between these entries will be further subdivided by single connecting entries, B, and single face entries, C, on about 400-ft. centers, respectively; also by dragways, D, midway between the cross entries.

Thus a block system providing great concentration will be developed. The blocks M, N, O and P will be mined as indicated, by faces 150 ft. long retreating toward the connecting entry, B, while cross entries will be protected by 50-ft. barriers. Cuts will be loaded from blocks M and O alternately. From the faces of these blocks the coal will be carried through the dragway, D, by the scraper scoop to a common loading point, R, on the connecting entry. The pockets A, will be mined slightly in advance of the faces to maintain square corners and to facilitate loading. The coal from these pockets will be shoveled by hand into the path of the scoop.

Having mined all of the coal from blocks M and O, except that in the cross entry barriers and narrow ribs flanking the connecting entry, the loading station will be transferred from R to S and mining of the blocks N and P in exactly the same way will be commenced.

This layout has an advantage in haulage in that the storage track and loading station are not on the cross entry. Thus there is no interference with haulage to and from development working faces. In developing the connecting and face entries as well as the dragways, blowers and canvas tubing could be used.

**Drilling Coal Electrically**

For rapid mining the electric coal drill is as important as the mechanical loader. These two men will drill, charge and shoot 20 holes, 7 ft. deep, on a 160-ft. face in about 3 hr.

George Fitz, general manager of the company, proposes a system which avoids much of the development by narrow entries necessary to the plan last described. His idea is to drive cross entries in sets of three—a haulway and two air courses in each set—at intervals of 400 ft. From the air course and half way through the solid coal between sets of cross entries he would drive 75-ft. rooms at full width directly off the air courses, leaving 100-ft. pillars between adjacent rooms. Each room would be 200 ft. deep. One scraper would load out one cut from each of two adjacent rooms in one shift.

The average length of the cross entries from the main entry to the outcrop in the Ajax mine is about 1,000 ft. Along these stub cross entries about six such rooms driven on the advance would reach out to the outcrop. In the retreat he would mine one after another of the room pillars by slab cuts and at the same time rob the chain pillars of the cross entries. Or, in case some local condition should forbid long-face slabbing, the 100-ft. room pillars might be recovered by splitting them with 75-ft. rooms. It is this two-way attack which attracts Mr. Fitz to the plan.

**Scraping the Face**

A three-rope control on this type of loader imparts almost human intelligence to the scraper as judged by its movements. It hugs the face while gathering a load and then it swings clear.

As already stated, no standard system has yet been devised by this company for the operation of its scrapers. Rooms and pillars of varying widths, depending on the existing layout, are being worked with the scrapers until some definite conclusions can be reached and the development work accordingly completed. Nevertheless, even with such make-shift arrangements the machines are saving money.

Four men compose a loading machine crew—an operative who also serves as a boss, a car trimmer and two face men. These latter set the rope jacks and do what little picking and shoveling is required to clean up the face. In addition two men are engaged at night in preparing the cuts. They do the cutting, drilling, shooting and timbering of as much face as one scraper will clean up in a shift. One locomotive and two men handle a sufficient number of mine cars for two scrapers so that the time of only one of these men is charged to each machine.

A low-vein shortwall machine cuts a kerf to a depth of 6½ ft. Shot holes 1½ in. in diameter and 7 ft. deep are drilled electrically, being slanted from a point 8 in. below the roof on the face to the roof itself at the back

Dumping a Load

Here the scraper bucket rides up the chute and delivers into a car on the entry. Manifestly it is simpler to haul coal to the car than to haul the car to the coal—an important advantage in favor of the scraper loader. The roof is brushed in the mouth of the dragway to give a maximum height of about 5½ ft. for the accommodation of the loading chute of the scraper. The steel mine car stands only 20 in. off the rail, yet has a capacity of 1½ tons. Lumps on this car show that the scraper handles big coal.



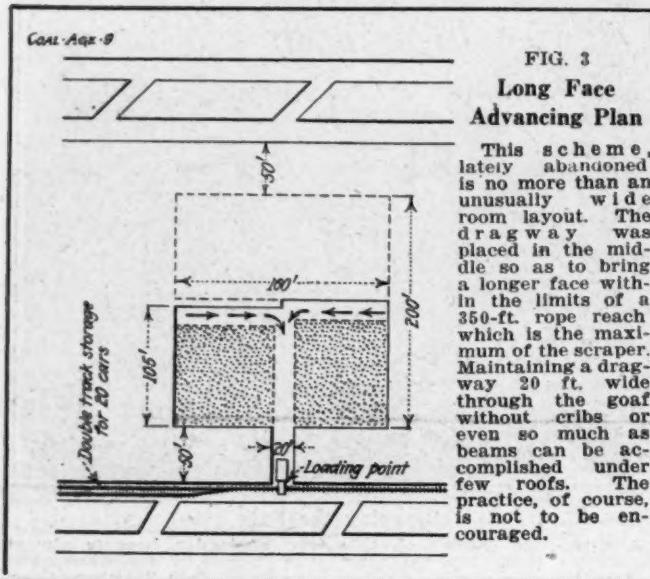


FIG. 3
Long Face
Advancing Plan

This scheme, lately abandoned, is no more than an unusually wide room layout. The dragway was placed in the middle so as to bring a longer face within the limits of a 350-ft. rope reach which is the maximum of the scraper. Maintaining a dragway 20 ft. wide through the goaf without cribs or even so much as beams can be accomplished under few roofs. The practice, of course, is not to be encouraged.

of the hole. These are placed on about 8-ft. centers; each is charged with 9 in. of black powder and fired by squibs. The holes are set off one at a time, the succession of firing being from the two ends toward the middle of a face. The roof is supported by 6-in. round posts, or their equivalent, and 10x4x1-in. cap pieces. The posts are set in rows on about 5-ft. centers each way.

Prior to August the company did little better than to break even on its costs as between machine and hand loading. A record of the performance of the two machines in twelve shifts during the first half of August shows that 1,673 tons of coal were loaded—an average of 70 tons per machine per shift—which brought about a saving of 13c. per ton. The machine loading cost analysis contains all items which should be charged against the machine such as labor, powder and shooting, miscellaneous supplies and repairs, power, interest and depreciation. The loading crew is paid a rate equal to the average daily earning power of hand loaders in the Ajax mine.

The actual saving of 13c. per ton in the cost of loading is due to the increased production per man rather than to the adoption of a flat wage rate. Thus the average output per hand loader is about 8 tons per day (low coal and unsteady labor), whereas the average per man on the loading machine crews per day during the first half of August was 17.5 tons.

DARB FORK MINE USES SCRAPER

The one Goodman scraper in the Darb Fork mine was installed at the beginning of August. Benefiting from the experience with scraper loaders at the neighboring Ajax mine, the officials at Darb Fork began to save money at the very outset. During the month of August this machine loaded an average of 75 tons per shift producing, with the additional yield of 10 hand loaders in narrow places, a total of 4,400 tons in 26 shifts.

By mid-September this machine was advancing a 160-ft. face in accordance with the plan illustrated in Fig. 3. A dragway 20 ft. wide midway between the limits of the face was driven from the cross entry through the barrier and maintained by timbers through the robbed area behind the face. First, one half, and then the other, of a cut was loaded, the loading chute being on the entry. The reason for working the long face by halves was to provide more work in one cut for the scraper. Had the dragway been located on one

end of the face, the latter would have required shortening inasmuch as the rope reach of the machine is only 350 ft.

It was thought this face might be advanced in this fashion to the limits of the inby barrier. However, after the face had been advanced about one-half of the intended depth, the dangers of the layout were made manifest by weight on the face and on the timbers, particularly on those which flanked the dragway. The layout was not feasible and it was planned immediately to move the scraper to a new location. The remaining coal in front of the face can be attacked from the inby cross entry. This work proved the worth of the scraper.

LOADING MACHINE CREW AT WORK

The loading machine crew consists of an operative, a car trimmer, two face men and a boss. Half the time of the cutting machine crew or one man-shift is charged to the scraper. Actually the face is cut in 3 to 3½ hr., using a shortwall machine. Two men drill the coal electrically and shoot it. They work close behind the cutting machine so that when the face has been cut the holes are drilled, charged and made ready for shooting. The actual time required to drill and shoot a 160-ft. face, with holes on 8-ft. centers, is about 3 hr. These two men also do the timbering. Half the time of a locomotive crew is spent in serving the scraper.

Coal is loaded into 20-car trips. About 50 ft. from the loading station on the entry a storage track has been laid which will hold 20 cars. Consequently, at no time need the scraper remain idle for the want of cars. An electric hoist may be installed to facilitate car spotting. An electric bell signalling system co-ordinates movements on the face with those on the entry.

A new type of mine car is being installed for the scraper. It is of all-steel construction and holds 1½ tons of coal, stands only 20 in. off the rail and is fitted with 12-in. wheels equipped with roller bearings. The body is of the box type. It has been found desirable to

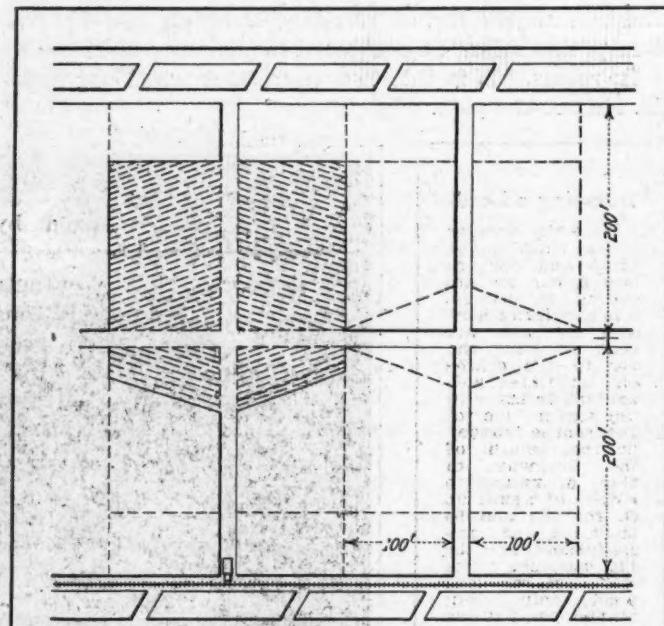
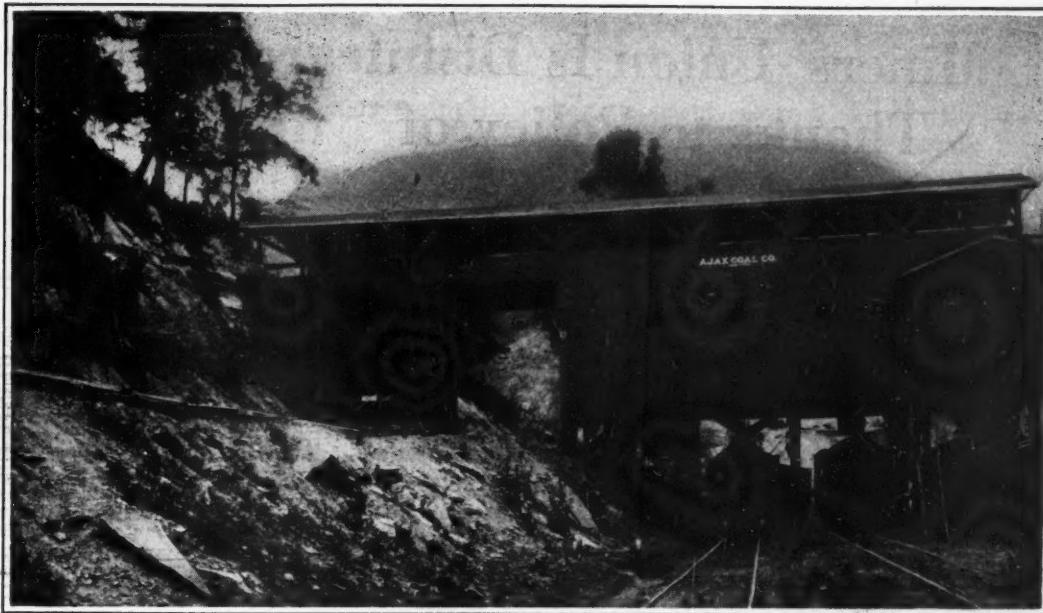


Fig. 4—Proposed Layout of Converging Faces

The view that the V formed by a pair of converging faces as a means of avoiding roof difficulties is of doubtful value is held by a wide circle of mining men. But in this case the converging faces have been chosen more to provide a longer face and as a convenience for the scraper than as an aid to the control of roof.

Ajax Tipple

This plant is one of the few in the Hazard field of Kentucky on which the coal is dumped direct from mine cars. The capacity of this tipple is about 1,000 tons a day. The scraper loading in this mine that has been going on for months has convinced the operators that this type of loading machine has great possibilities even though there are local handicaps that every mine must overcome in order to get high efficiency out of its loaders.



use 30-lb. rails on all cross-entry track. The radius of the track curve in the mouth of the dragway, on which the chute of the scraper rests during the loading operation, is 45 ft.

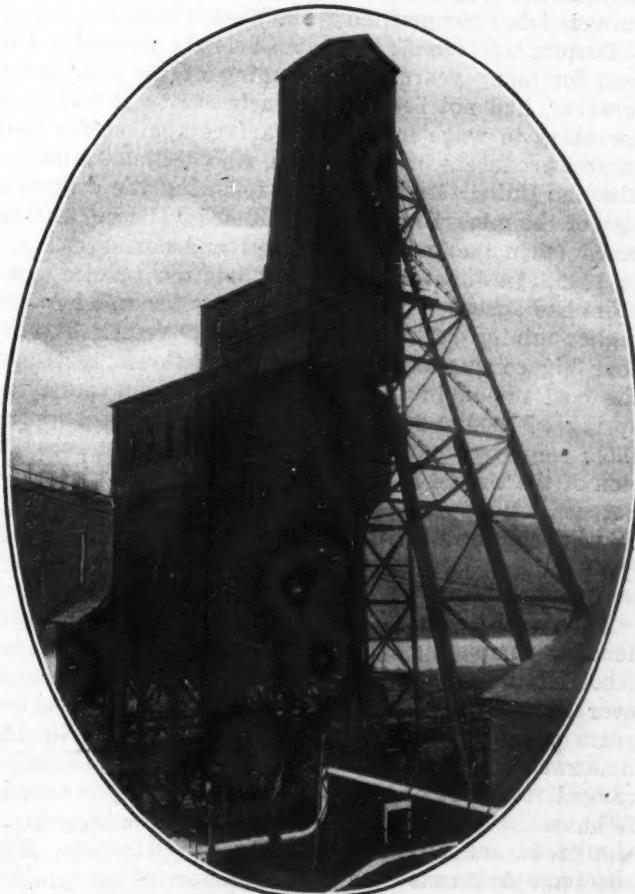
In this mine 6-in. round posts covered with cap pieces are set on about 4-ft. centers in rows 4 ft. apart. The distance from the face to the nearest row of posts changes from 6 to 10 ft. on alternate days. The 160-ft. face yields about 100 tons per cut and, barring protracted delays, a cut is cleaned up in one shift. This machine has been moved from one place to another through a distance of 100 ft. in 20 min., this period including delays in both taking down and setting up the equipment in the respective places.

Fig. 4 shows a system of V face scraper mining which Bruce Hardy, general superintendent of the Darb Fork Coal Co., contemplates trying out. The section 400 ft. wide between cross entries would be subdivided by dragways on 200-ft. centers and by a single intermediate cross entry, these dividing the section into square blocks. Beginning from the intermediate cross entry the blocks would be mined out as shown. The V front is not intended to aid in holding the roof but rather to assist the scoop in changing direction from that of the face to that of the dragway. Consequently, the V is comparatively flat. Its exact angle will be fixed by experiment.

Until early September of this year the highest outputs attained in any one shift had been 102 and 103 tons in the Ajax and Darb Fork mines, respectively. These companies see an opportunity to load 125 and perhaps 150 tons per machine per shift, day after day and, accordingly, to lower proportionately the cost of loading. They are realizing a larger return per ton for machine loaded coal because it contains a larger percentage of lump than that loaded by hand. Machine loaded pillar coal is being mined as cheaply as room coal, which is not the case where hand loading is followed. The scrapers have enabled the Ajax company in particular to mine areas of thinner coal and from more steeply dipping places than could have been done by hand.

Of the savings which concentration has effected, that of haulage is perhaps the greatest. Both companies will now be in a position to produce larger tonnages without employing more men or building additional houses.

So strong is the roof over the Hazard No. 4 seam in the Darb Fork mine that a dragway 20 ft. wide, as shown in the headpiece, is maintained in the robbed area leading back from the advancing face. Under few roofs could this be done. The camera set-up is on the face and in the path of the loaded scraper which is seen departing toward the entry. The two vertical pulleys held by the jack post, on the left, constitute the deflector around which the scraper swings in a right-angle turn.



Tipple at Isabella No. 1 Mine Serves Coke Ovens

This tipple at the Isabella No. 1 Mine of the Hillman Coal & Coke Co. is located on the Monongahela River above Brownsville, Pa. The mine, which was opened in 1908, was completely electrified in 1923. Its entire output—2,000 tons of Pittsburgh seam coal per day—goes to coke ovens, which accounts for the typical coke-region construction of the tipple.

Miners' Union Is Disintegrating in Southwest, Thanks to Policy of "No Backward Step"

By Sydney A. Hale

Special Contributor, *Coal Age*
New York City

"NO BACKWARD STEP"—meaning refusal even to consider reducing wages from the peak levels of 1920—has been the battle cry of the United Mine Workers ever since the demand for readjustment became insistent.

Mr. Lewis says his stand has saved the wage structure of the country and preserved the national prosperity. In the Southwest, however, the liquidation he opposes is taking place. The union is disintegrating. In 1920 the word of

the United Mine Workers was law in the coal fields from northern Texas to the Canadian border. Today Texas is wholly non-union, Oklahoma is nearly so, Arkansas is fast approaching that status. The story of the disintegration is told in detail in Mr. Hale's article.

THE GREAT SOUTHWEST came knocking for admission into the Central Competitive Field in 1906. It was denied a seat at the council table by the operators already in, who claimed that there was no commonality of interest between the producing districts of Illinois, Indiana, Ohio and western Pennsylvania, and the states lying west of the Mississippi River. Not only was admission denied, but the Central Competitive Field producers also took their union associates to task for wasting energy on the Southwest while the Central Competitive Field was still exposed to the menace of ruinous labor competition from West Virginia.

Despite this rebuff, the union held the ground it had won for many years. The winning of the Southwest, however, had not been particularly easy. It had been necessary to wage industrial warfare against the four largest producers in that region, who declined to recognize the United Mine Workers, following the organization of the miners in Arkansas, Kansas, Missouri, Oklahoma (then the Indian Territory) and northern Texas in 1899. In June of that year, 25 of the smaller operators had agreed to the union demands for an 8-hr. day, higher mining rates and lower powder prices, but the four big companies, producing about three-fourths of the coal mined in the Southwest, held out until the spring of 1900 and then signed up, one by one, giving their employees all they had asked for except recognition of the United Mine Workers. That recognition did not come until 1903, when the producers formed the Southwest Interstate Coal Operators' Association.

UNION NEVER IN FULL CONTROL

Even with the association firmly established and extending complete recognition to the union, organized labor has never been able to effect an absolute control over the coal fields of the Southwest. In the earlier years of recognition, the tonnage represented by the Southwestern Interstate Coal Operators' Association ranged from 64 per cent in Missouri to 98 per cent in Arkansas. In the four states having membership in the producers' organization—Kansas, Oklahoma, Missouri and Arkansas—there are a number of small mines that have always been out of the reach of the union.

Fourth of a series of articles describing the changes in the labor status of the different bituminous coal producing districts of the United States in recent years. Preceding articles appeared in *Coal Age*, Sept. 25, Oct. 1st and Oct. 8. Another article will appear in an early issue.

In Texas, the sphere of union influence did not extend beyond the bituminous mines in the northern part of the state; the bituminous mines along the Rio Grande and all the lignite operations have remained non-union.

As in other fields, the progress of unionism has not invariably been peaceful nor the exercise of acquired power without its tyranny. The very mention of Kansas inevitably recalls the turbulent reign of Alexander Howat, during which outlaw strikes became so commonplace and so dangerous to the continued existence of the United Mine Workers in that region that Howat and his lieutenants were deposed from their district offices by John L. Lewis in 1921 and the representative of the international organization placed in charge threatened to suspend 4,000 miners (Kansas employed approximately 8,200 at that time) who refused to return to work when ordered to do so by the union.

ARKANSAS HAD ITS TROUBLES

In Arkansas, too, the history of union control is not unmarred by spotted pages. The celebrated Coronado Coal Co. case, in which the Supreme Court of the United States laid down the principle that an unincorporated union could be sued for damages, was based upon such a page. In 1914, a group of companies operating in the Prairie Creek valley in Sebastian County elected to abrogate a contract with District No. 21 and run open-shop. The experiment ended in murder and the destruction of "all of the property" on the premises of four of the mines. In fairness to the international organization of the United Mine Workers, it should be remembered that the Supreme Court exonerated the parent body of all direct responsibility, holding the eruption "a local strike, local in its origin and motive, local in its waging and local in its felonious and murderous ending." The same opinion, however, opened the way to the further prosecution of the district and local unions and of individuals.

Unlike the Central Competitive Field, the growth of the Southwestern Interstate Field during the period of union supremacy has not kept pace with the growth of bituminous tonnage for the United States as a whole. During the early years of organization, 1899-1906, the relative increases were on a comparable basis and Oklahoma showed a faster rate of growth than did the United States. Between 1907 and 1917 Texas forged ahead, with percentage gains from 1908 to 1915 inclu-

sive, in every case outdistancing the record for the nation. Since that time there has been a slowing up, which has become most marked in the past few years. Oklahoma's progress since 1907 has been somewhat more erratic, but the slowing-up process did not set in until 1921, although its record in some of the preceding years fell below that of the United States. Arkansas, Kansas and Missouri, on the other hand, have never been able to catch up with the national percentage rate of increase since 1904, the year following the recognition of the United Mine Workers by the Southwestern Interstate Coal Operators' Association. The situation is shown graphically in Fig. 10.

The basic rates of compensation, however, have undergone a steady, unbroken advance. The union contract pick-mining rate in the thick-vein field in Arkansas in 1902 was 55c. per ton: today it is \$1.15, an increase of 109 per cent. Day rates have been boosted from

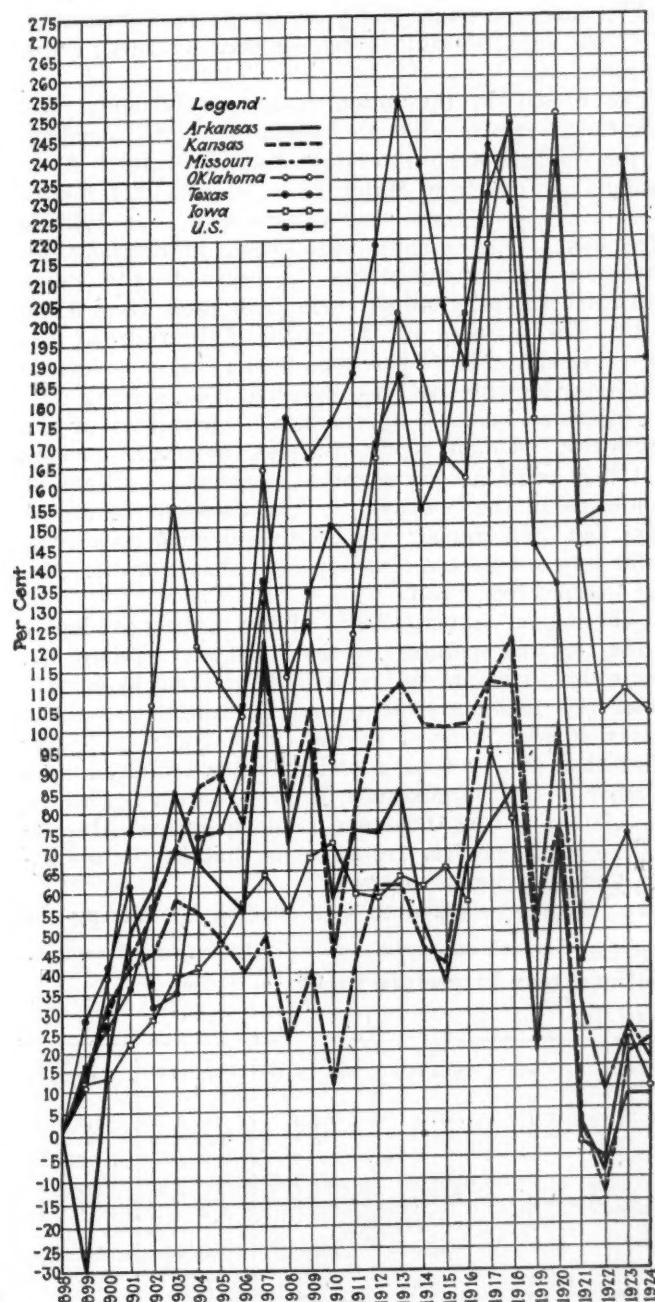


Fig. 10—Southwest Loses ItsStride in Production

The story of the percentage increase year by year in the output of the coal producing states of the Southwest since 1898 is one of wide fluctuation and uneven growth when comparisons are made between the individual states in that group. The region started out at a lively clip, but in recent years has been lagging behind the country as a whole in the matter of tonnage gains.

\$2.25 in 1903 to \$7.50, an increase of 234 per cent. Were the comparisons carried back to 1898, the increases, of course, would be greater. Unfortunately, authentic comparable data on those earlier years have not been compiled. The history of pick-mining rates since 1902 is set forth in Table V and is shown graphically in Fig. 11.

It would be shooting wide of the mark to say that the decline in the rate of growth of production in these southwestern districts is wholly chargeable to unionism. There are other factors of limitation which have had a great influence. The natural opportunities for expansion have been much smaller. The Southwest has not had the industrial development which has created an ever-widening demand for fuel in the states east of the Mississippi and north of the Ohio and Potomac Rivers. Its entrance to that charmed territory is barred by transportation adjustments, in many cases by the quality of the coal, and by the business-hungry mines of the Central Competitive Field and the long stretch of the Appalachian Region. Its westward sweep is dammed both by the lack of heavy demand and by the ability of the operators in the West to take care of home-grown requirements.

In the struggle to supply the industrial centers dotting the Missouri River, the Southwest must meet the competition of central and southern Illinois. Only the power of the Interstate Commerce Commission has prevented that struggle flaring into a bitter rate war. On top of all this is the competition of fuel oil. The Southwest was waging a losing fight against the inroads of petroleum in factory and in home when the East, so concerned since the World War over the pressure of fuel oil, never gave the liquid a thought as a possible competitor.

NOT MUCH COAL SHIPPED

There has been little direct conflict between union and non-union production in the Southwest's battle to maintain its position. Aside from a small tonnage of Missouri and Kansas coals going to Colorado, a little Oklahoma coal to New Mexico and some Arkansas tonnage to Tennessee during the war period, distribution of the output of the southwestern states has been to non-coal producing and to union coal producing states. In this competitive battle, therefore, the same rigidity of wage scales that has handicapped the producers of Arkansas, Missouri and Oklahoma has also hampered their principal rivals. Local consumption and locomotive fuel demands have absorbed the greater part of the output. Arkansas, with the smallest home market, ships little more than one-third of its product in interstate commerce—even under the most favorable conditions. Missouri is able to sell less than 10 per cent of its production outside its own borders, yet the consumption of native coal represents little more than 25 per cent of the total coal requirements (exclusive of railroad fuel) of the state.

The Southwest, nevertheless, is finding this rigidity irksome. Notwithstanding the fact that labor costs in the Central Competitive Field are pegged at the 1920 levels, many sections of the coal producing territory west of the Mississippi River are demanding that the inflexible wage scale be done away with and that they be free to fight to retain business with the basic labor costs they enjoyed seven or eight years ago. The first break came in Texas and attracted little or no attention outside the state—possibly because public interest has been more easily centered upon the travails of the

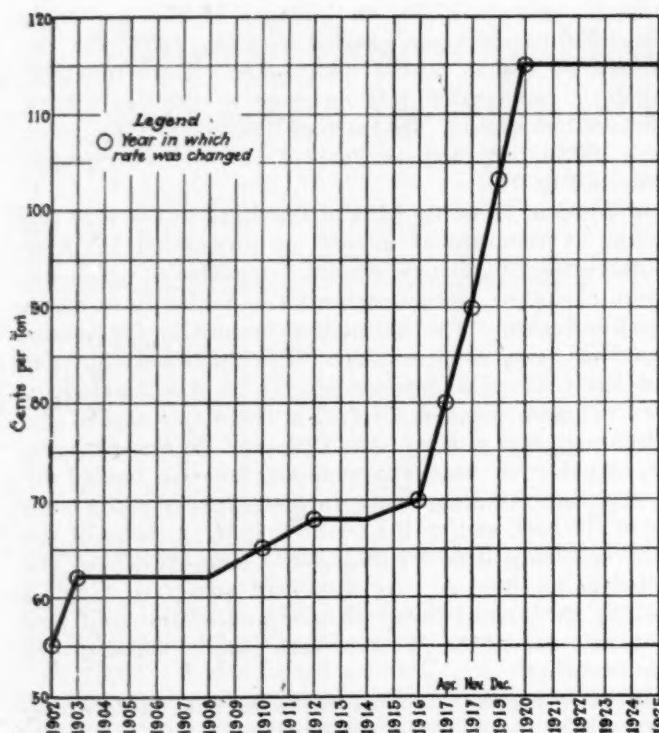


Fig. 11—Upward the Tonnage Rate Marches Along

The pick-mining rate in the thick-vein field of Arkansas is typical of tonnage rates in the Southwest. Every change under union leadership has been upward; even the decrease that marked the history of rates in the Central Competitive Field in 1904-06 is missing in this territory.

Southwestern Interstate Coal Operators' Association groups. Oklahoma was the next to fall away from the union. Arkansas is following in Oklahoma's footsteps. Only in Kansas have union sympathizers been able to discourage effectively open-shop longings. Missouri still remains quiescently union.

Late in the summer of 1921 Texas coal operators and representatives of the United Mine Workers met in futile conference at Fort Worth. Producers from the Thurber (Erath County), Strawn (Palo Pinto County) and Bridgeport (Wise County) fields asked that wages be reduced to the 1917 scale. This meant a reduction of the day rate from \$7.50 to \$5, with corresponding changes in other rates. In consideration of the acceptance of such a proposal operators were ready to agree to reopen mines then closed down. Then, as now, union officials were very solicitous that contracts *preserving* high wages be held inviolate.

The labor leaders, headed by the president of District

No. 21, rejected the proposal of the operators. That rejection was the rock upon which the organization of the United Mine Workers of America in Texas was wrecked. In September, the Texas-Pacific Coal & Oil Co., operating at Thurber, announced that it would run open-shop, paying \$5 to day men and \$2, instead of \$2.65, to tonnage men. Other mines in Erath, Palo Pinto and Young counties followed suit although complete severance of union relationships did not take place until several months after the first break. In 1923, mines in Wise County made the decision to operate non-union unanimous.

A typical wage scale now in effect in the northern Texas field shows the following rates: Mining rate, \$2 per ton; day engineers; \$7.08 per day; night engineers, \$6.28; top men, \$4.36 per day; bottom men, \$5; spraggers, \$3.65; trappers, \$2.65; road cleaners, \$4.75; face men, \$5.29; blacksmiths, \$5.51; blacksmiths' helpers, \$4.77; entry yardage, \$1.68 per yard; back brushing, \$1.47 per yard; straight brushing, 68c. per yard; cribs, \$1 each.

The breaks in the union ranks of Oklahoma and Arkansas were foreshadowed when operators, members of the Southwestern Interstate Coal Operators' Association, held out from March 28 to May 3, 1924, before consenting to a three-year extension of the 1920-23 agreement. During these negotiations at Kansas City, producers vainly endeavored to persuade the union leaders to accept a reduction in days rates from \$7.50 to \$6. They pointed out that much of the railroad tonnage formerly enjoyed had gone to oil; that considerable industrial tonnage had also deserted coal, leaving only a precarious business to the union operations of the Southwest. Union representatives, however, insisted that they could not recognize any special conditions or handicaps in the Southwest. The Jacksonville agreement had been signed: the Southwest must accept the terms imposed by the contract entered into in the Central Competitive Field.

"Thereupon," explained one of the leading producers in the region, "operators in the Southwest advised Mr. Lewis that it would be impossible for them to survive under the 1924 agreement, and by mutual consent a provision was inserted in the union contract to the effect that at any time a coal operator withdrew as a member of the Southwestern Interstate Coal Operators' Association or the Oklahoma Coal Operators' Association he would be free from further liability or obligation under the union contract."

The change referred to was effected by making the

Table V—Pick-Mining Rates in Southwestern Interstate Field

(Rates in Cents per Ton)

	1902	1903-8	1910	1912-14	1916	April, 1917	Nov., 1917	Dec., 1919	1920 and Current*
Arkansas:									
Thick Vein.....	55.0	62.0	65.0	68.0	71.0	81.0	91.0	102.0	115.0
Thin Vein (Spadra Field).....	†	87.5††	90.5	93.5	96.5	106.5	116.5	127.5	140.5
Kansas:									
Thick Vein.....	65.0	72.0	75.0	78.0	81.0	91.0	101.0	112.0	125.0
Thin Vein (Osage County).....	135.0	160.0	165.0	170.0	175.0	185.0	201.6	240.0	291.7
Missouri:									
Thick Vein (Bever, etc.).....	60.0	67.0	70.0	73.0	76.0	86.0	96.0	107.0	120.0
Thin Vein (Ray, Clay, Lafayette, etc.).....	100.0	111.0	116.0	121.0	126.0	150.0	152.7	171.0	192.7
Oklahoma:									
Thick Vein (Eastern Okla.).....	55.0	62.0	65.0	68.0	71.0	81.0	91.0	102.0	115.0
Pittsburg County, etc.....	†	†	75.0	78.0	81.0	91.0	101.0	112.0	125.0
Thin Vein (Henryetta).....	70.0	70.0	80.0	83.5	86.5	96.5	106.5	117.5	130.5

* Union scale rates.

† Date not available or non-comparable.

†† Rates under 1908 Contract.

first clause of section 22 of the general contract read:

All the provisions and terms of this contract are hereby mutually agreed to by and between all the operators, *while* members of the Southwestern Interstate Coal Operators' Association and all the miners of Districts 14, 21 and 25—instead of:

All the provisions and terms of this contract are hereby mutually agreed to by and between all the operators, members of the Southwestern Interstate Coal Operators' Association, and all the miners of Districts 14, 21 and 25—

The same month the interstate agreement was signed at Kansas City mines in the McAlester-Wilburton district in Oklahoma made known their determination to revert to the November, 1917, scale. By July the movement was in full swing and clashes between union sympathizers and open-shop workers began to take place.



Fig. 12—The Shifting Labor Status in the Southwest

The Southwestern Interstate Field as a wage-making entity comprises the producing districts in Arkansas, Kansas, Missouri and Oklahoma. Texas, geographically and historically part of this field, has been acting independently for several years. As a matter of fact, the southern Texas bituminous mines along the Rio Grande, not shown in the map, have always denied the union recognition.

From sporadic disturbances these developed into organized attacks: two were directed against the Kali-Inla mine near Cambria and a third against Rock Island No. 12 at Hartshorne. In a number of cases, workers were shot at from ambush, but no fatalities resulted and there was no destruction of property. Oklahoma guardsmen were called out to protect the operations and their rigor was not relaxed until late in the year. In the meantime organized opposition to the open-shop movement disintegrated. By the end of the year only the Henryetta district maintained its fealty to the union and the 1920 scale.

The Henryetta district gave up the struggle to continue operations on the Jacksonville-Kansas City basis with the beginning of the present coal year. At that time 42 mines offered steady work throughout the summer if the men would accept the 1917 scale. This meant minimum day rates of \$4.36 and \$5, against \$6.86 and \$7.50 under the union scale, and a cut of 24c. per ton in the mining rates. The miners rejected the offer. Thereupon the Puterbaugh interests took the lead in reopening under open-shop conditions by starting up the B. & A. mine at Schulter. A few days later the McAlester Colliery Co. resumed work at Kincaid and shortly after that Crowe No. 6 and the Atlas mines fell into line. By the end of July practically all the operations then working in that district were paying the 1917 scale.

The defections in the Henryetta district have aroused union officials to new activities, culminating in a general strike order issued the last of August, 1925, and directed against all mines in District No. 21 paying less than the Jacksonville-Kansas City scales. This latest drive has been centered, not against the Henryetta field, where picketing by prayer has already led to several court clashes, but against the McAlester-Wilburton district, the scene of the original revolt against the union. Rock Island No. 12 at Hartshorne seems to be the first main objective in the new campaign, as it was in the earlier attempts to stop the collapse of the union in Oklahoma. The final outcome is still in doubt, but judging by the developments of the past year, the present chances of the United Mine Workers to regain lost ground in that state are dubious.

Although the movement was slower in getting under way, in its major aspects the situation in Arkansas has paralleled that in Oklahoma. The first definite break with the union came in January, 1924, when C. L. Melton announced that he would run open-shop. The majority of the operators, however, held aloof for more than a year after this pioneer took his stand. This delay upon the part of other producers to follow the lead of Mr. Melton—and of the stripping operations at Charleston and Branch and certain shaft and strip pits in the Spadra field—may be explained by their reluctance to sever their union connections so long as there was any hope that the officers of the United Mine Workers would consent to a modification of the Jacksonville-Kansas City agreement. Up to the time William Dalrymple succeeded Andrew McGarry as president of District No. 21, optimists cherished the delusion that the election would usher in a change in policy. Mr. Dalrymple soon undeceived them.

With that hope gone, the movement to abandon the union has been accelerated. By the first of July the list of open-shop operators had been swelled by the Bernice mine at Russellville, the Collier-Dunlap at Hartman, the Arkansas Mining Co. operation at Mon-

tana, the Warner and the Semi-Anthracite company at Coal Hill. A little later the Greenwood Coal Co., one of the largest producers in the state, posted notices that it would reopen on the 1917 basis. The Backbone Coal Co. at Excelsior and the Mammoth Vein colliery at Hartford, controlled by the same interests, also shifted to the non-union column. The announcement that they would run open-shop was not in every case followed by an immediate resumption of operations, but enough mines started up again to convince the miners that the declaration was not an empty gesture.

FAMILIES HOLD "PRAYER MEETINGS"

There have been the usual appeals to court against intimidation by union pickets, and some destruction of property. As one part of the campaign of the operators to cripple the fighting strength of the labor organization application was made for the appointment of a receiver for District No. 21 of the United Mine Workers of America. More recently temporary federal injunctions were issued against 32 locals in Sebastian, Franklin, Logan, Johnson and Pope counties, prohibiting intimidation. As in Oklahoma, miners' wives and daughters have held "prayer meetings" at the open-shop mines in the Alix and Denning Districts "in an effort to influ-

ence the men who have gone to work at a reduction in wages, taking the places of the striking miners in this field."

It is, of course, too early to make any prophecies as to the ultimate outcome. The movement has not developed the sweep of the Oklahoma revolt, but the drift is strong. The largest producer in the Southwest is not now operating its Arkansas and Oklahoma mines, so the union can receive no help from that quarter.

In Kansas the union has been much more successful in holding its lines. Several attempts have been made to evade the 1924-27 scale by co-operative mining, but demonstrations by union sympathizers appear to have checked them. Missouri pursues the uneven tenor of its ways with no signs of open rebellion against the union scale. Iowa, not a part of the Southwestern Interstate Field, but closely allied to it geographically and geologically, also seems resigned to, if not content with, its lot. This state, like the Southwest, was long ago denied admission to the Central Competitive Field councils, although in the case of Iowa the opposition was confined to the operators of Indiana, Ohio and Pennsylvania. It has given the United Mine Workers of America two of its international presidents of the past decade, and remains strongly union.

Experts Talk Anthracite and "Contract Breaking"

By Paul Wooton
Washington Correspondent of *Coal Age*

NEW ENGLAND RETAILERS will not jeopardize their anthracite allotments in the slightest by handling bituminous coal or other substitutes. On the other hand they will be doing just what the operators want them to do if they will protect users of anthracite by meeting their fuel requirements in any way within their power. Assurances to that effect were given by Dr. E. W. Parker, of the Anthracite Bureau of Information, in the course of remarks last week before the Washington Section of the American Institute of Mining and Metallurgical Engineers.

George S. Brackett, vice-president of the Northern West Virginia Coal Operators' Association, defended bituminous operators—especially those of northern West Virginia—who have reopened their mines at wages less than those specified in the Jacksonville agreement. He held that union miners, by going to work at non-union wages in other and competing regions had already scrapped the contract. Allen H. Willett, economist for the National Coal Association, also spoke.

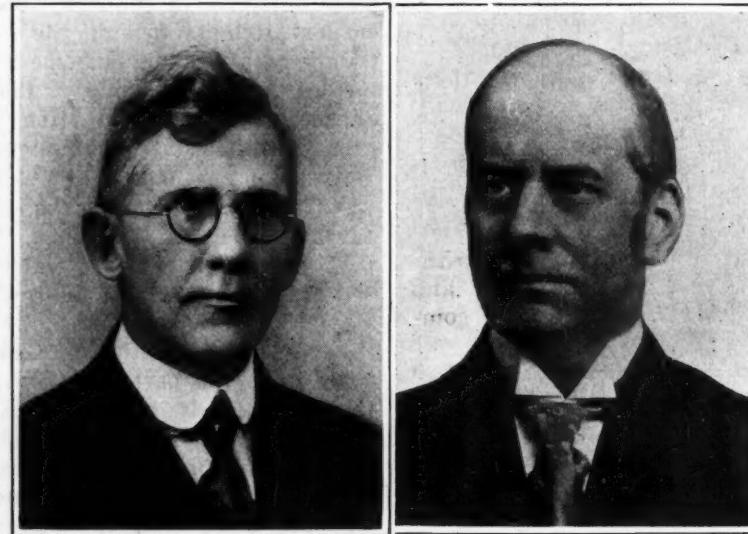
Dr. Parker raised some significant points thus: "Rumors are current that other agencies of mediation, political or otherwise, are actively at work endeavoring to devise some plan by which the opposing forces can

be called together and at the same time not prove to be a boomerang to the mediator. There does not appear to be any apprehension of the federal government mixing in unless or until there is danger of suffering or inconvenience on the part of the public from a scarcity of fuel. To my mind such a danger is somewhat remote.

"From April 1 to Aug. 31 the mines have produced, according to the U. S. Bureau of Mines, approximately 32,800,-

000 gross tons, of which about 70 per cent, or say 23,000,-000 gross tons, were of the domestic sizes, pea and larger. By far the greater part of it is in the cellars of consumers. Moreover, as last winter was unusually mild, considerable quantities of hard coal were left over.

"I feel safe in saying that if the local distribution has been looked after as systematically as has the distribution from the mines to communities every user



George S. Brackett

Dr. E. W. Parker

of anthracite should have enough coal on hand to last him well after the first of January, and if the lighting of furnace fires this fall is put off until they are absolutely needed the next year will be at least a month old before it will be necessary to indulge in the use of substitutes for anthracite.

"The present suspension may last three or four weeks longer; it may last until the robins appear again next spring. Its duration depends upon a number of contingencies and it will continue until this time next year if it depends for its termination on the operators acceding willingly either to adding any more to the consumer's burden of fuel cost, or of saddling the check-off on the industry. What they may be forced to do is another question.

RECALLS PRESIDENT HARDING'S WARNING

"It is as true now, so far as anthracite is concerned, as it was in 1922, when on Aug. 18 the lamented President Harding, after being flouted and defied by John Lewis, reported to Congress that 'the country is at the mercy of the United Mine Workers' and the quality of that particular kind of mercy is not strained.

"Another chief executive, President Wilson, on an occasion produced by events similar to the present, said: 'The business of government is to see that no other organization is as strong as it is; to see that nobody or group of men, no matter what their private business is, may come in competition with the authority of society.' He further declared that the conduct of the mine workers' union 'had been not only unlawful but unjustifiable.'

Mr. Brackett made the most convincing case, some of his hearers thought, that has yet been put forward in behalf of those operators who have ignored the Jacksonville agreement. He said:

"As the large union companies were forced to close their mines, many of their operatives, chafing under the idleness imposed by what they considered impossible conditions under the agreement, requested the companies to resume on a basis similar to that prevailing in non-union fields. These requests came up in the form of demands from individual miners requests from groups headed by a spokesman, resolutions by local unions and finally by legal petitions prepared by the miners, through legal advice.

"Thousands of union miners had individually withdrawn from the wage contract as individuals and obtained employment in the non-union mines of competing fields.

CONTRACT ALREADY BROKEN

"The alternatives as stated by Senator Watson, of the consolidation Coal Co., to John L. Lewis, facing both the union operator and the union employee were 'not the choice of both working under the contract and either breaking it. The contract, being in its essence a collective agreement, was already broken and gone.' Nothing remained then but those alternatives 'between sharing idle mines and unemployment on the one hand, and sharing competitive production and prevailing wages on the other.'

"The pressure brought upon the large companies to do the latter was gone. The economic situation in the district was acute. The belief prevailed that northern West Virginia, by reason of isolation, freight differentials, etc., was faced with economic ruin unless a level

could be found where mines could be operated on a basis of sustaining both employer and employee. All classes of people—union men of every craft and trade, merchants, professional men, property holders, and in fact, every class of citizenship, approved of the step to be taken—all, I say, but the officials of the international mine union.

"Local autonomy in District 17 of the miners' union had been suspended. The affairs of the men were in the hands of personal representatives of President Lewis. The regularly elected officers of the local organization had been supplanted and had no voice in matters of government.

UNION REPUDIATED CONTRACT

"In other words, so far as the miners' individual action is concerned, the union contract relationship had been specifically repudiated by an overwhelming majority of the union members.

"Public opinion on all sides urged a resumption of mining and the disregard of an agreement that all thought did not legally exist.

"If a contract was disregarded, it was done by the individual members of the union, who accepted a choice between idleness and employment. The companies, watching their organizations disintegrate and their best men forsake their union and go to work, and urged and supported by universal public opinion, fell into line.

"These are the facts of the controversy, if there be a controversy. By far the majority of the coal companies had no agreement, and their employees would listen no longer to the dictation of the unions' international representatives without voice or vote or district autonomy. Very able lawyers on both sides examined the contract. No suit in our courts has ever been filed.

"Under such conditions the issue to be decided is not the technicalities of a document which exists only in the files of the operator and employee, but their mutual decision on the obligations which they owe to the families and to the properties entrusted to their care. These obligations existed prior to and independent of the relationship to the third party of the union.

ACCUSES SEVEN UNION OPERATIONS

"I would like to say a few words as to the seven union companies still operating in northern West Virginia. I know that one of the largest of these companies has a three-year contract covering their tonnage which does not expire until next April. One company is the only operating mine, producing a suitable byproduct coal within the first zone freight rate to a local industry. One other company is operating under a contract by which the employees place the coal on the railroad car at a fixed price lower than that justified by the union wage scale. One other company controls docks at the lake front and is in a position to protect its coal in the markets of the northwest, and I have no hesitancy in saying that it is my firm belief that every one of these seven companies is violating the Baltimore agreement in some way.

"It is also my belief that, in the so-called union mines, these violations of the agreement are permitted by the international officials of the union with their full knowledge and consent; and by such permission they are tacitly recognizing the economic impossibility of the Baltimore agreement in northern fields of West Virginia."

Uncle Sam Can Aid Public by Leaving Coal Alone

By Harry L. Gandy

Executive Secretary, National Coal Association,
Washington, D. C.

THE COAL INDUSTRY has enjoyed the unenviable distinction of being the favorite object of attack by advocates of the extension of governmental control of industry. My observation is that at times there has been a quite ready welcome for suggestions of federal interference in the industry on the part of otherwise supposedly fair-minded and conservative organs of opinion. What is the explanation of the prevalence of this uncritical bias?

Many advocates of federal interference with the bituminous coal mining industry usually fall back on one or another of the following assertions:

(1) *That the government must prevent any interruption in the supply of coal and excessive prices.*

(2) *That the government must deprive monopolistic bituminous mine owners of their ill-gotten gains.*

(3) *That the government should require the elimination of surplus mine capacity and a less wasteful operation of the mines.*

Interruption of supply and high prices will be treated together, because they are mutually interdependent and one is obviously affected by any change in the other.

DEBATES THREE QUESTIONS

It is my purpose to take up each of these lines of argument in turn and to consider briefly, on the one hand, what basis, in fact, there is for the implied accusation, and on the other hand what hope of improvement lies in governmental interference, whether state or national.

(1) *Must the government prevent any interruption in the supply of coal and excessive prices?*

Nothing is so apt to arouse the wrath of the American people as the sudden increase in price of some commodity in general use. During the World War when the prices of other commodities were rapidly advancing, that of bituminous coal was kept down by the regulations of the Fuel Administration. As the result of a remarkable combination of circumstances, the withdrawal of regulation, the bituminous coal miners' strike of 1919, the switchmen's strike of mid-summer 1920, and the failure of consumers to use ordinary business precaution in obtaining their future requirements of bituminous coal early in the season, the late summer and fall of 1920 witnessed an unprecedented advance in the price of bituminous coal. On that occasion an insistent demand for federal regulation of the industry

swept over the industrial East and was especially vociferous in New England. The fact that only an insignificant proportion of the bituminous coal marketed sold at high mine prices, had no weight; isolated instances of excessive prices were quoted as though they were typical.

The fact is that bituminous coal operators took less advantage of profit-making opportunities than did many other industries in those troublous times. It was by no means an unusual thing for an operator, even when not bound by contract to continue to furnish coal to his regular customers at prices little, if any, above his then normal fair-profit price. That the 1920 bulge in prices was due to temporary conditions was conclusively shown by the steady reaction which resulted in the depressed market in 1921.

There are two characteristics of the bituminous coal industry that should lead any observer to accept as proper the somewhat wider fluctuation in coal prices, with changing conditions of most commodities. On the one hand no adequate coal as industrial fuel can be obtained in a short time. On the other hand, the cost of fuel constitutes so small an item in the total cost of the finished product of most lines of manufacture that manufacturers are prepared to pay high prices if such prices are necessary. For these reasons, even a slight shortage of coal causes a rapid advance in prices. But it is a remarkable fact that few staple commodities have shown smaller general fluctuations in price year in and year out than has bituminous coal.

Such variation as there has been, except during and immediately after the war, has been brought about by one of three things, namely: general industrial depression; strikes in the industry; or inadequate transportation. The bituminous coal operators are prepared to mine and ship, at short notice, all the coal that the country can possibly need, and so long as an adequate supply is available it is obvious that unfairly high prices are an impossibility. Reduction in output in times of general industrial depression is economically desirable, for coal is not a commodity which can be conveniently stored in large quantities far in advance of the time of its need.

Interruptions in supply on account of inadequate transportation facilities are very largely a thing of the past, if the recent performance of the railroads in handling 11,000,000 and 12,000,000 tons of coal every seven days for weeks in succession without a car short-

From an address made by Mr. Gandy before the National Association of Manufacturers at St. Louis, Mo., Oct. 26, 1925.

age is an indication of their future ability. Interruptions as a result of strikes of mine employees are still a possibility and will be so long as the mine workers' organization sets its face against the peaceful settlement of wage disputes in the union fields, but even interruptions from that source will be less felt today than at any time for many years, on account of the growth of so-called non-union production.

Advocates of interference who base their demand on occasional interruptions of supply or advances in price, should be made to explain in detail how they think the situation can be remedied by governmental action. Regulation of the mining end of the industry will not make good deficient transportation, and unless a soldier is to stand at the back of every miner, no governmental orders will compel men to mine coal against their will. Strikes do not become an impossibility through governmental operation or regulation, as is shown by the history of our railroads since the establishment of the Interstate Commerce Commission. Peace in the mining industry could be purchased even by governmental agencies only at the expense of yielding to every demand of the mine workers.

(2) Must the government deprive "monopolistic bituminous mine owners of their ill-gotten gains?"

When mine prices are high some operators make money. During the runaway market of 1920 a few operators made big profits. The public became convinced that big profits were a normal characteristic of the bituminous coal mining industry and it became fashionable to speak disrespectfully of coal barons and coal profiteers. Here again let us briefly consider how much truth there is in the charge and what remedy the government would have to offer.

The normal condition of the bituminous coal mining industry is one of low mine prices and little or no profit for the operator. For many years before the war it is unquestionable that the bituminous coal mining industry operated on a lower margin of profit than any other important mining or manufacturing industry in the country. During and immediately after the war prices were relatively higher. Today, however, the industry is running true to form and is again fueling the country at little or no profit to itself.

PROFIT WAS LESS THAN TAX

What the slump in prices that occurred in 1921 after the so-called run-away market in 1920 meant in terms of profits to the bituminous coal mining industry may be seen from the fact that of the companies reporting to the income tax unit on that year's transactions more than half showed a loss on the year's operation, and the net gain to the entire industry, obtained by deducting the losses of the unprofitable operations from the gains of the profitable companies, was less than the amount paid as tax to the federal government. In other words after taxes were paid, the entire industry showed in red ink in the ledger the results of the year's operations. The condition today in that respect is not far different from the condition in 1921.

Even if it were true that at current prices some operators made large profits, how would the government go about correcting that situation? So long as coal must be mined from operations with higher costs, the price must be high enough to induce operators of such mines to turn out coal. Is the government going to insist that the operator with the low cost operation must sell his coal at a low price in the same market

in which the coal of the high cost operator is sold at a high price? Such an attempt would be doomed to failure not only because of the impossibility of tracing individual shipments of coal to make sure that their selling price did not yield more than the government regarded as a fair margin above cost, but the confused market conditions that would result would cause far more loss to consumers of coal than would be involved in paying a quite uniform market price regardless of cost.

(3) Should the government require the elimination of surplus mine capacity and a less wasteful operation of the mines?

Much is heard about the one-third excess of mine capacity and the 200,000 excess coal miners.

Undoubtedly if every bituminous coal mine in the country operated 300 days in the year, more coal would be produced than the country could consume, but as a matter of fact, surplus producing capacity is a typical and healthy characteristic of a rapidly developing industrial community. I very much doubt whether the much bruited excess in the bituminous industry is any greater than in many other lines of activity.

WOULD PREVENT EXCESS CAPACITY

It has been suggested that the government should acquire title to all bituminous coal deposits and should lease the privilege of operating under such regulations and restrictions as would prevent the development of excess capacity. I need not dwell upon the difficulty or practical impossibility of determining just what is necessary and what is excess capacity. It would be the most short-sighted of policies to limit mine capacity to the point where a sudden demand for a large output could be met only after opening and equipping new mines.

Then there is the inevitable tendencies which would develop in a democracy like ours for any bureau having such tremendous powers as would be involved in the authority to regulate the opening of coal mines all over the country, to use that power to further personal ambitions, personal friendships or political expediency. Such a power would go far beyond that now lodged in any federal agency, even the Interstate Commerce Commission.

Surplus labor in the industry is not held there by force of arms. The door of employment swings outward as well as inward. In modern machine-equipped operations, bituminous coal miners are no longer especially skilled men. Unskilled labor is mobile labor and can easily flow from industry to industry. Unskilled labor is in demand in this country owing to the restrictions put upon immigrants coming from other countries. And yet in 1923 there were nearly 10 per cent more men in bituminous mines than in 1920 producing about 1 per cent less coal. Is it any wonder that the average days worked dropped from 220 in 1920 to 179 in 1923? Thus there was no flow of labor away from bituminous coal mining.

Figures become still more significant if we compare the record of the three union states, Ohio, Indiana and Illinois, on the one hand, with that of the two predominately non-union states of Kentucky and West Virginia on the other hand. Production in the three union states in 1923 was 11 per cent less than it was in 1920, while the number of men employed in the same states in 1923 was 12 per cent greater than the number employed in 1920. On the other hand, production in the

two non-union states was 22 per cent larger in the later year and the number of men employed 16.8 per cent greater. These figures being interpreted mean that in the non-union fields, demand for increasing production was met partly by more efficient operation and partly by increasing the labor force, whereas in the union fields just named, with their high wage scale, the number of men increased 12 per cent at the same time that the output diminished 11 per cent.

The point that I am leading up to is this: It is easy to deflate mine capacity. Unprofitable mines will close voluntarily or under compulsion in due time. It is not so easy to deflate the labor supply of an industry whose rates of pay and working conditions are so attractive that more and more men flock into it at the very time that the number of days of operation is falling off.

There is one way to deflate the labor supply, and that is to allow economic forces to work themselves out, and to reduce the inflated wage scale to a point where the earnings of part-time operation will no longer be so attractive as to draw a constantly increasing supply of men into the industry. That one and only method of deflating labor in the industry is the one method which no government in a democratic country could

undertake to enforce. There are unmistakable evidences that natural economic forces are rapidly accomplishing this reform.

There are people so seemingly ignorant of what is going on about them and so apparently incapable of learning from experience as to advocate governmental interference in the coal mining industry for the sake of promoting efficiency. It has been a common-place of economic philosophy since the days of that canny Scotchman, Adam Smith, that governmental handling of industrial matters is sure to be inefficient. For evidences of the wisdom of that doctrine we need look no further than to the record of our own government's handling of railroads, airplanes and ships during and since the war.

Bituminous coal operators are not as inefficient as critics of the industry seem to believe. In the matter of extraction, for instance, whether 60 per cent or 80 per cent or 90 per cent should be extracted depends largely upon the prices which consumers are willing to pay for coal. Practically 100 per cent extraction is possible if the operator can obtain a price to recoup him for the large expense involved. If the government is going to undertake to obtain a higher percentage of extraction, it must compel consumers to pay the price.



These Mining Men Are Keen to Swap Ideas

Every year the Southern Mining Co. holds a technical conference for its own mechanical and electrical men and those of its affiliated companies at Williamsburg, Ky. It is a sort of mining institute where operating ideas from the several mines are discussed. This year the attendance reached 100. Part of the group is shown in the large picture below. F. A. Signer, electrical engineer, who presided at all the sessions for two days, had to be carried into the hall (see inset) and used a wheel chair, thanks to a broken leg and sprained ankle suffered in an accident underground. Bearing him out of the automobile are: G. L. Birch (left), chief electrician of the company's Balkan mine, and Bryan Harkness, chief electrician of the Insull mine.

News Of the Industry

Rumors of Peace in Hard-Coal Strike Denied by Operators and Union Heads; Coolidge Asked to End Suspension

Unqualified declarations on Oct. 26 by both operators' and miners' leaders that no settlement proposal was under consideration or in prospect indicated that the possibility of peace in the hard-coal field was not yet in sight. Speaking for the producers, Samuel D. Warriner, chairman of the Anthracite Operators' Conference, told General Charles W. Berry, chairman of the New York State Coal Commission, that "there isn't even a hen on the nest." John L. Lewis, president of the United Mine Workers, was equally emphatic in denying peace reports, declaring that the 158,000 hard-coal miners are standing firmly for the demands served on the producers.

Mr. Warriner said there was not the slightest chance of an early settlement of the strike, as the operators were determined to fight to "a final showdown" in the effort to reduce "labor cost per ton" and obtain a guaranty that the miners will not strike in the future when a contract expires and a renewal is being negotiated. While the vigor of these denials would seem to foreshadow a long and bitter struggle, it is recalled that in the past equally blunt statements have been quickly followed by a resumption of negotiations.

Reports that were current throughout the anthracite field over the weekend and which were given publication in daily papers in the region as well as in New York and Philadelphia to the effect that a compromise had been effected between the miners' union and operators were emphatically denied by officials of both interests.

Name Father Curran as Mediator

The story had it that the operators, through the mediation of Rev. J. J. Curran, of Wilkes-Barre, had advanced the proposal to the miners that a 5 per cent increase in wages and a modified form of the check-off would be granted in exchange for a long-term agreement.

W. W. Inglis, chairman of the anthracite operators' negotiating committee, when interviewed concerning the rumor, declared: "Reports that the anthracite operators have offered the mine workers a 5 per cent increase in wages and that we have partially accepted the check-off demand are absolutely and entirely untrue. My first knowledge that such a proposition had even been spoken of came when I read the reports of the rumor in the press.

The statements are without foundation."

When asked if there was any likelihood of an early resumption of mining Mr. Inglis said: "From present indications I would judge that it will be quite a while before work is resumed."

Thomas Kennedy, international secretary-treasurer of the miners' union, flatly denied the story of the reported proposal, as did Chris J. Golden, president of District 9, United Mine Workers. Both are members of the miners' scale committee. The Philadelphia headquarters of the miners' union also issued a denial of the report.

It is understood that the proposal was actually made by Father Curran to John L. Lewis, president of the union, at Atlantic City some weeks ago, but without the authority or knowledge of the operators.

President Coolidge, Governor Pinchot of Pennsylvania, and John L. Lewis, international president of the United Mine Workers, were asked to aid in an early settlement of the "suspension" in a resolution adopted Oct. 23 by the Bronx Grand Jury, New York City. The resolution followed a hearing on coal conditions in that borough at which Major Gen. Charles W. Berry, chairman of the State Coal Commission; Edwin J. O'Malley, Manhattan Commissioner of Markets; Chief Sanitary Inspector Joseph Lonergan, representing Dr. Frank J. Monaghan, Health Commissioner, and Roderick Stephens, vice-president of the Stephens Fuel Co., Inc., were among the witnesses.

The resolution stated that "a distressful condition has arisen and that unless immediate steps are taken to adjust the present strike, untold misery and suffering will befall many poor families in our country. In order to prevent the dire consequences resultant from a continuation of the strike we urgently and respectfully ask you to take such steps as will bring about an immediate and peaceful settlement between the operators and miners."

Many dealers object to laying in heavy stocks of soft coal, contending that an unexpected ending of the strike would find them loaded up with soft coal which they could sell only at a loss. On the whole, said Major Deegan, foreman of the Bronx Grand Jury, the coal trade had acquitted itself commendably in its expressed willingness to co-operate in the present situation.



Major General Charles W. Berry

Chairman of the New York State Coal Commission, recently revived by Governor Smith to act in the emergency brought about by the suspension of operations at the anthracite mines, advises the public to lay in soft coal at once, "and not wait until dead of winter." He also abandoned his previous stand on \$16 as a "fair price" for anthracite, saying that "there is no anthracite."

General Berry said that rumors of a strike settlement which had drifted in from the mine fields were not borne out by opinions he had received "from men supposed to know something about the mines." He quoted his informants as saying the strike "is going to be fought out and there is not likely to be an end within six months." On the other hand, he said, Wall Street men who were generally well informed had held that the strike would end soon.

Spokesmen for the mine workers' union said positively that nothing was under way to their knowledge, and, further, President Lewis, it was learned, is scheduled for addresses at Shamokin and Mahanoy City, Pa., on Oct. 29.

Unless New York City coal dealers provide an adequate supply of soft coal and sell it at reasonable prices, Major Gen. Charles W. Berry, chairman of the New York State Coal Commission, asserted Oct. 24 that he would urge the city to open municipal coal depots for the sale at cost, of soft coal and other substitutes for anthracite.

"The commission," he said, "is making every effort to persuade dealers to obtain soft coal, but if they fail to do so we must act in the name of public welfare and see if the city authorities cannot provide fuel for the people."

"There is no doubt in my mind that

Urge Retailers to Stock Substitute Fuels

"Stock substitute fuels," was the warning sent out to the country by the board of directors of the National Retail Coal Merchants' Association at a meeting held at Toledo, Ohio, last week. "Pending the resumption of anthracite mining," the board urged "all retail merchants who deal in hard coal to immediately obtain a supply of substitute fuels, sufficient to offset the loss of tonnage due to the refusal of the miners to continue at work pending negotiation of a new working agreement in the hard coal fields."

The board also recommended full co-operation with all properly constituted public authorities "in every practicable effort to assure equitable distribution of available supplies and the avoidance of hoarding, speculation or unreasonable prices." In a third resolution the directors asked the producers to discourage pyramiding by stipulating that coal sold to a jobber should not be resold to another middleman. The same resolution called upon retail dealers to confine their sales to established team and consumer (household) trade.

if there were places in New York City where anybody could buy soft coal at a reasonable price there would be an end to the present situation."

Health Officer J. J. Hagan, Fuel Administrator of Jersey City, announced that he had obtained 1,000 tons of anthracite from Pennsylvania, which would arrive in Jersey City this week and be sold to poor families at 60c. per 100 lb., a rate equal to \$12 a ton. Peddlers in Jersey City are now charging \$1.25 per 100 lb.

Mr. Hagan said the city coal would be distributed by city employees with city shovels and city trucks, and would be sold only in small lots to persons who could not afford to buy in the open market. The coal was originally bought by a Western firm, which cancelled the order, and it was obtained while in shipment by a Jersey City firm, which turned it over to the city at cost.

Hagan told of taking an option on all the Welsh coal he might want at \$18 a ton, which he said would mean \$21 a ton on this side of the Atlantic, and of planning to import it if the famine became acute.

S. A. Wertheim president of Burns Brothers, New York City, who arrived on the "Berengaria" Oct. 24, said that he had made large contracts for shipments of British anthracite to New York and that two 5,000-ton ships had already left laden with the fuel for this port.

Mr. Wertheim declined to tell how much coal he had bought in England. He said that he would not comment on the coal situation in New York until he had conferred with the directors of Burns Brothers.

Anthracite Field Has 670,000 Tons Of Domestic Coal Now, Survey Shows

By R. J. Arthur
Scranton, Pa.

The volume of anthracite coal left in the field or in railroad yards near the producing districts is small, judging by a survey made for *Coal Age*, Oct. 24. The total of domestic sizes is estimated at 670,000 tons and of steam sizes (buckwheat and smaller), 1,190,000 tons. These tonnages were determined with indifferent assistance from anthracite producers and official agencies. Statements from these sources were withheld because of the difficulty of arriving at definite figures, due to constantly changing tonnages at various storage points.

By observation and from unofficial sources the following information was obtained:

In the Hampton storage plant of the D. L. & W. Coal Sales Co., at Scranton, about 200,000 tons of coal is stored. About half this quantity is domestic fuel. In one trimmer 70,000 tons of chestnut coal repose; about 40,000 tons of pea coal and approximately 90,000 tons of buckwheat comprises the remainder of the storage. In cars on the D. L. & W. R.R. throughout the anthracite field between 60,000 and 70,000 tons of coal, domestic and steam sizes, is said to be awaiting shipment. Lines of filled cars are in evidence on sidings and switches throughout the Northern field. A representative of the D. L. & W. Coal Sales Co. declared that the company "has enough coal to last throughout the suspension." It is understood that a rationing system is in effect by this company and that hospitals, charitable institutions and industries which have a direct bearing on the public welfare will be the first among its customers to be served. This policy is said to be in effect by other distributors also.

The Hudson Coal Co. has instituted a program which calls for the rapid movement of stored coal. This is evidenced by the fact that the company has emptied its Carbondale (Pa.) trimmers of 400,000 tons of prepared sizes since the suspension started. Dealers in Hudson coal are required to stock the fuel in their own storage plants. Storage of Hudson company coal at Parsons, Pa., is estimated to total 70,000 tons. This is birdseye coal. In Olyphant, Pa., the Hudson storage

piles contain about 300,000 tons of buckwheat coal.

The Lehigh Valley Coal Co. at its Ransom (Pa.) storage plant has about 25,000 or 30,000 tons of pea coal. This does not represent one-half of the total storage in piles and cars held by that company's coal selling agent.

The Scranton Coal Co. at its Cadosia and Middletown (N. Y.) storage plants two weeks ago had approximately 350,000 tons of coal, the greater part of which was domestic fuel. This coal is being moved rapidly.

In the lower field the Philadelphia & Reading Coal & Iron Co. is said to have larger storages, especially of smaller sizes, than any of the other hard-coal producers.

No estimates were available on the Lehigh Coal & Navigation Co.'s storage.

The Temple Coal Co. of Scranton is said to be in about the same condition as the Scranton Coal Co. Other independents throughout the region are understood to have a total of 800,000 tons of various sized coal on hand.

Reports from all of the "old line" companies and their selling agencies quote prices the same as those which prevailed previous to the suspension of mining. A check is being made on dealers by the sales agencies in an effort to uncover profiteering. A threat of loss of supply is held over the heads of dealers or retailers who sell coal at premium prices.

Johnstown Men Discuss Top Rock Blasting

At the first 1925 meeting of the Pennsylvania Coal Mining Institute of Johnstown, in Johnstown, on Friday, Oct. 16, the blasting of top rock as a means of preventing the cutting and breaking of roofs in mines was one of the practical theories advanced by mine officials and employees. President Charles Enzian, of Windber, presided and led the discussion. Safety lamps and other safety appliances and measures were discussed. Secretary William Flemming of Johnstown presented a financial report of the Institute.

Among those who took prominent parts in the discussions were Nicholas Evans, local mine inspector; John Ira Thomas, mine inspector; A. E. Roberts, of Revloc; A. C. Cook, Windber; Lewis Evans, Cardiff Coal Co.; David Davidson, Nant-y-Glo; Martin Ankeny, Johnstown, and Prof. W. G. Duncan, State College. It was planned to hold meetings in the future every two months, the next session to be held in December. The executive board of the Johnstown branch is composed of Prof. W. R. Chedsey, State College; Dennis Boyle, Johnstown; Patrick Frear, Seward; Patrick Nairn, Johnstown; Archie Miller, Cairnbrook; Professor Duncan, Mr. Evans and Mr. Thomas.

Anthracite Tonnages Now in Storage in Piles or on Wheels, Estimated

	Domestic Sizes	Buckwheat and Smaller
D. L. & W. Coal Co., Hampton Yards	110,000	90,000
D. L. & W., on cars elsewhere	30,000	30,000
Hudson Coal Co.	370,000
Lehigh Valley Coal Co.	30,000
Scranton Coal Co., in yards	100,000	100,000
Temple Coal Co.	100,000	100,000
Other independents	300,000	500,000
Totals	670,000	1,190,000

Survey Shows Bitter Anti-Anthracite Campaign in New England

Previous to and during the suspension of anthracite mining, which is now ending its second month, the anthracite operators, as well as other agencies, pointed out that a cessation of anthracite production would result in further loss of hard coal markets, especially in New England. President Lewis, of the United Mine Workers, scouted this prophecy on the basis that the installation of special apparatus to burn oil was too costly, that oil itself was a more expensive fuel than hard coal and that bituminous coal would be generally unsatisfactory.

After a trip to the section involved and consultations with governmental organizations, coal-trade leaders and others concerned, a *Coal Age* correspondent reached the following conclusions:

New England, through government and civic organizations, is conducting a far-reaching campaign to displace by substitute fuel 10,000,000 tons of anthracite which is used yearly in that territory. And further, the campaign is meeting with success.

Anthracite is being singled out, pictured as an ogre and practically boycotted.

Coal consumers in New England feel they are being tricked and mulcted by the anthracite industry. They are sure they are being made the goat of profiteers. Collusion between the producers and the miners' union is charged openly. Recurring strikes and suspensions are regarded solely in the light of trade politics to bring about an advance in the price of the commodity concerned.

Since the present suspension of mining the consumers in the northeastern states have assumed a determined attitude. They are going to destroy what they term "the anthracite bogey." The reassurance is given New England coal consumers that bituminous coal can be adopted readily, with little or no more trouble than anthracite and with less expense.

Attack Supply, Quality and Price

New England is basing its case against anthracite on three fundamental objections: uncertainty of supply, poor quality and high price. Another argument advanced against the continued use of hard coal is summarized in a recent statement by the New England Governors' Fuel Committee as follows:

"Experts report that the easily mined anthracite is being rapidly exhausted, and in the future the cost of mining anthracite will increase." It is then added, "Geologists estimate the supply of bituminous coals to be adequate for more than 2,000 years; consequently, the ultimate depletion of bituminous coal is not a factor affecting the price to the present generation."

The New England Governors' Fuel Committee is the principal agency in the campaign against the use of anthracite. It is headed by John Hays Hammond, a national figure. Eugene C. Hultman is vice-president and Bernard P. Scanlan is secretary of the committee.

The commissioners explain that the only power they wield is that of public opinion and this they endeavor to create favorably toward the use of anthracite substitutes through the medium of newspapers. They are getting unprece-

dented co-operation both editorially and in the news columns of New England papers.

The issuance of pamphlets and circulars also is a part of the day's work. These are distributed to consumers, to public organizations, chambers of commerce, Rotary and Kiwanis clubs and other civic organizations. Speeches advocating the use of substitute fuels are "always in stock."

Not a small part of the work of the fuel committee is the assistance it is giving to retail coal dealers in the actual handling of bituminous coal. Sources of supply, quality, freight rates and methods of shipment of bituminous coal as well as other pertinent facts regarding soft coal are regularly sent out to dealers.

Distributed Under Rationing System

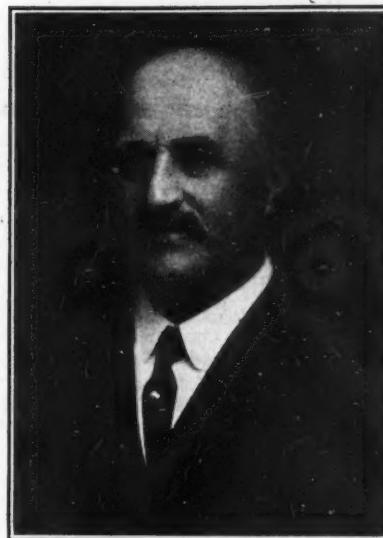
At the present time New England is short three million tons of its annual supply of anthracite. According to the best available figures the northeastern states have less than seven million of the ten million tons of anthracite which they burn annually. The tonnage now stocked in coal yards is being distributed under a rationing system and with what approaches discrimination. The retail marketing is being done on a "substitute selling" plan, by which the retailer induces the customer at first to take deliveries of both hard and soft coal. Later the buyer gets nothing but soft coal.

New England is primarily concerned, however, with its industrial welfare. Comparison shows, according to a statement issued by the Governors' fuel committee, that the annual household heating bill of New England is at least double that of other sections of the country having a similar climate and with which it competes industrially. Translated into dollars this means that about \$70,000,000 a year additional is included in wages and living costs in New England due to its dependency on anthracite.

There is a saving grace in the situation for the anthracite producers—with conditions. The present price of anthracite delivered in the cellars of consumers in New England is being paid with little complaint. By reason of the campaign against the fuel, however, anthracite will gradually lose its market in the Northeast. An indication that it has been losing its market continuously is shown in that its tonnage has not increased in the past half-dozen years, despite increases in population and homes.

Supply Must Be Assured

The anthracite producers' best weapon in combating the campaign against them is the assurance to New England consumers of continuous supply of fuel. This can be done only with the co-operation of the men who mine the coal—through agreement with the United Mine Workers. That such an agreement would benefit the worker as well as the owner goes without question.



Samuel A. Taylor

Pittsburgh's choice for A.I.M.E. president is a graduate of the Western University of Pennsylvania (now University of Pittsburgh), of which he is now a dean in charge of the School of Mines. He was technical adviser in the Fuel Administration during the war and in 1912 was the president of the American Mining Congress. He also is a coal operator, banker and consulting engineer.

Figures on the shipments of various fuels to New England in 1922, 1923 and 1924, which will undoubtedly prove of much interest to those studying the fuel situation, follow:

RECEIPTS IN 1922

Anthracite (strike), tons.....	6,471,000
Bituminous, tons	18,807,000
Mineral crude oil, gallons.....	749,192,000

(About four barrels of oil—168 gallons—equals one ton of bituminous coal in heat value.)

RECEIPTS IN 1923

Anthracite, tons	12,184,000
Bituminous, tons	23,684,000
Mineral crude oil, gallons.....	582,581,000

RECEIPTS IN 1924

Anthracite, tons	10,608,557
Bituminous, tons	18,894,267
Mineral crude oil, gallons.....	637,270,000

Veil Hoover Committee Plans Till Washington Meeting

An agreement that no publicity be given the findings of the subcommittees studying the work of the U. S. Bureau of Mines until final action shall have been taken on them by the whole advisory committee was adopted by the committee at its Pittsburgh meeting, last week. Another meeting of the committee is to be held early in November in Washington.

Every effort is being put forth to expedite the work of the committee, in order that the reorganization of the Bureau will indicate to Congress that the mining industry is prepared, through that agency, to do voluntarily some of the things which certain legislators would make compulsory. While the only drastic legislation likely to be proposed at this session of Congress will apply to coal, it is recognized that the prescribing by law of a program of returns which must be made by coal producers would establish a precedent which soon would be applied to other commodities entering into general use.

One Dead, Four Injured In Attack on Employees Of Pittsburgh Co. Mine

In the first labor trouble growing out of the resumption of work on the 1917 scale in the Pittsburgh district, six men, all negroes, employed at the Midland Mine of the Pittsburgh Coal Co. battled their way to freedom after being attacked by a mob of 100 men at Houston, Pa., last Saturday night. One of the attackers was killed and four others were slashed. James Johnson, of Jeannette, and Arthur Thornton, of Pittsburgh, both negroes, were arrested and lodged in the Washington County jail.

The Pittsburgh Coal Co. issued a statement Oct. 26 in which it condemned the action of the union sympathizers and announced that it would "afford its employees the fullest protection, both legal and otherwise."

With Banning Mine No. 2 setting a new daily record, the three mines of the Pittsburgh Coal Co. in the Pittsburgh field operating under the November, 1917, scale, produced a total of 2,295 tons of coal in a single day, it was reported by the company Oct. 24. Banning No. 2, the pioneer mine, near West Newton, loaded 1,239 tons in a single day; Banning No. 1 loaded 638 tons, and Midland Mine, near Canonsburg, which was opened a week ago, loaded 418 tons. Each of the three mines made a new daily record.

The number of men working at the three mines is 637, divided as follows: Banning No. 2, 271; Banning No. 1, 196, and Midland No. 1, 168.

Robert Baughman is superintendent at Banning No. 2, Oscar Steckman at Banning No. 1 and John Bartrom at Midland No. 1. William Lauder is division manager in charge of the Youghiogheny Valley and H. M. White is the division manager in charge of the Midland operations.

Connellsville Coke Ovens Blowing in Rapidly

In the Connellsville (Pa.) coke region the H. C. Frick Coke Co. has fired 200 of 352 ovens at the Whitney plant, and is firing the remainder and 50 additional ovens at Hostetter. The number of ovens in blast at the Mammoth and Marguerite plants also is being increased and by the end of this week 770 more ovens will be in than last week. The Hustead-Seamans Coal & Coke Co. has fired all its idle ovens at East Middlesboro. The Century Coke Co., at Brownsville, has all but 15 of its 205 ovens at work. The Hillman Coal & Coke Co. has all its ovens going except some at the Isabella and Brownsville plants.

The Baton Coal & Coke Co. is firing all but 7 of its 142 ovens at Linn, near Brownsville, and 240 at the Sunshine plant, near Martin. The Etna Connellsville Coke Co. is resuming operations and firing all of the 119 ovens at the Garwood plant, and the Southern Connellsville Coke Co. is firing the 64 ovens at the Marion plant. The Sterns Coal & Coke Co. is firing the 132 ovens at

Home Coal from Factories

Henry L. Shattuck, a Boston attorney and a former member of Massachusetts Commission on the Necessaries of Life, is urging the industrial companies of the state to screen their coal supplies and sell the large sizes to their employees. This is being done to increase the use of bituminous coal.

the Eleanor plant, between Brownsville and Uniontown. The champion Connellsville Coke Co. has resumed operations and fired 40 ovens near Brownsville.

All sorts of crushing and screening schemes are being adopted to produce different sizes of domestic coke to ship into anthracite consuming territory. Coke breeze from the yards is being screened and old breeze piles scraped up and screened to produce nut coke. Screened sizes of domestic coke range as high as \$8 and \$8.50, and screened breeze \$6.50 and over at ovens in the Eastern market.

Soviet Buys Locomotives Here for Mines

The Westinghouse Electric International Co. has just received an order from the Amtorg Trading Corporation, the commercial representatives of the Soviet Government in America, for twenty-five mine locomotives to be used in connection with the electrification of the coal mines in the Donetz district, near the Black Sea, in Russia.

Some of these locomotives will be trolley and the remainder are of the storage battery type. A distinctive feature is that they will have adjustable wheel gages so that they can be operated on tracks of from 24 to 30 in. wide.

Big Doings in Coke

In the Uniontown-Connellsville district, where the fuel industry has been awakened from a lethargy of several months, due to the demand from the East for anthracite substitutes, independent coke operators without crushing equipment have put gangs of men to work with sledge hammers breaking coke. Crushed coke brings a premium of \$2 a ton over regular 48-hr. furnace coke.

As has happened many times in the past, the operations that are making the most of the present situation are those that do not have permanent blast furnace contracts. The backbone of the coke producing industry in the beehive field is a few large companies and their product is moving to blast furnaces on \$3 or \$3.25 contracts in spite of the \$8 market for furnace coke. The H. C. Frick Coke Co., however, is selling some domestic fuel for the first time in its history, according to reports.

Carnegie Coal Co. Bankrupt But with Large Assets

The Carnegie Coal Co., formerly dominated by John A. Bell, bankrupt coal operator, was placed in receivership on Oct. 21 in United States District Court at Pittsburgh, Pa., following the filing of an equity suit by the Harrison National Bank of Cadiz, Ohio, which holds an unpaid promissory note for \$10,000, signed by the coal company. The court appointed W. M. Wilshire, sales manager of the coal company, and C. C. McGregor, vice-president and general manager of the Montour Collieries Co., temporary receivers, to conduct the affairs of the Carnegie Coal Co. The receivership acts as a supersedeas in a suit filed by Harry F. Sinclair, New York millionaire oil man, to obtain \$125,000 on a promissory note.

The Ohio bank estimates the outstanding obligations of the Carnegie Coal Co. at \$9,500,000, of which \$7,500,000 is in first mortgage, 6 per cent bonds and other obligations and claims. The bank believes the assets of the coal company have an aggregate value in excess of the indebtedness. J. H. Sanford, president of the coal company, in an answer to the suit admitted the allegations, and joined in the request for the appointment of receivers.

The Carnegie Coal Co. was created Dec. 12, 1923, by the merger of the Carnegie Coal Co., Verner Coal & Coke Co., the Burgettstown Coal Co. and the Wabash Coal Co. During its existence the company was dominated by Mr. Sanford, then by Mr. Bell, and recently, when the latter became in financial difficulties, the control again reverted to Mr. Sanford and associates.

"Power Show" May Teach Coal Burning Economies

The Fourth National Exposition of Power & Mechanical Engineering will open at 2 p. m. on Monday, Nov. 30, at the Grand Central Palace, New York City. It will extend through the week, ending Dec. 5, opening each day at noon. The basic purpose of the exposition is to bring together showings of manufacturers of power and mechanical equipment so that engineers and industrial executives may have an opportunity for comparative study of the outstanding developments in the field.

Devices to increase the effectiveness and economy of combustion will be presented at the show in distinguished array. Air preheaters, pulverized fuel equipment of all types, stokers, water-cooled boiler furnace walls, soot blowers, and draft apparatus will be shown. One of the features of this group of exhibits will be the showings of recent developments in the more economical use of pulverized fuel. This will include new designs of boiler furnaces, several new types of burners for pulverized fuel and the latest achievements in crushing and drying coal. The managers of the show are Fred W. Payne and Charles F. Roth, with offices in the Grand Central Palace.

Strike Call to Non-Union Miners In West Virginia Seems Doomed To Failure as Production Mounts

The second strike call by the United Mine Workers to the non-union miners of northern West Virginia seems to have fallen on deaf ears, and the daily non-union coal production is gradually working back to where it was prior to Sept. 25, when the last strike was declared. The general feeling is that the union has lost out unless a runaway market develops, and that is practically impossible with the present heavy flow of bituminous coal all over the country.

In an effort to furnish grist for his mill, Van A. Bittner, chief international representative of the United Mine Workers in northern West Virginia, is doing his level best to discountenance the daily production figures announced by the non-union coal operators in the Fairmont field.

"Admitting for the sake of argument, that these figures are correct, which is far from the truth," Bittner says, "we find that 203 non-union mines loaded 1,649 cars of coal" in a day, "which is an average of only 8 cars to the mine, while 16 union loaded 305 cars, an average of 19 cars per mine." Continuing, he says in part: "If these figures of the non-union operators' propaganda bureau were true, it demonstrates that each union mine that is in operation is really two and a half times as efficient as the non-union mines.

"The actual car rating of these non-union mines is more than three times as great as the actual number of cars being loaded. This is another demonstration that even according to the operators' own figures they are getting less than one-third of their production at the non-union mines that are attempting to operate."

Union Seeks Referee

The union miners are resorting to the old play of involving the clergy and the newspapers to referee their bout with the coal operators. This developed recently, when Bittner issued a statement in which he set forth the following challenge: "If the members of the United Mine Workers are not in favor of the policies inaugurated by the officers of the union who are now in charge in northern West Virginia, then we are willing to leave this section of the country."

The challenge was made after George S. Brackett, head of the Brackett Statistical Organization, was purported to have said in an address before the American Mining Institute in Washington, D. C., recently that the international union destroyed the autonomy of the miners of northern West Virginia and left them without control over their own affairs, according to Bittner.

After a long statement in which personalities play a big part, Bittner suggests that he and Brackett make a round of the union miners in the field and ascertain if this is true. He suggests that newspapermen or clergymen

of all of the Christian churches of northern West Virginia accompany them to ascertain the facts first-hand.

In the first four days of last week the non-union mines in northern West Virginia produced 6,427 cars of coal compared to 6,821 cars in the corresponding period of the previous week. There was a slight increase in non-union tonnage along the Monongah Division, B. & O., and the Monongahela toward the approach of the weekend, but no records were broken. Non-union production was reduced considerably along the Western Maryland branches in northern West Virginia, due to car shortage and the rail engine men's strike.

Union tonnage increased slightly in the region last week. In the first four days of the week 1,179 cars of coal were produced, an increase of 22 cars compared to the first four days of the previous week. Union mines in the region loaded 312 cars of coal on Oct. 22, the largest day's output since Oct. 13. Union operations along the Monongahela loaded 224 cars of coal Oct. 22, which was the largest daily union production since the strike began, April 1.

Despite the wintry weather the United Mine Workers continue to hold mass meetings in the region. Gatherings are held in halls most of the time now. Recent meetings were held at Monongah, Watson, Brady, Lumberport and other mining towns.

Detroit Retailers Will Educate Public

The movement for better public education in coal consumption was forwarded Oct. 27 when the coal retailers of Detroit formed the Detroit Fuel Research Institute. This body expects to advance the cause of coal by showing the people of the community how to get the most out of their fuel.

Non-Union Miners Would Enjoin Prayer Meetings

An action unprecedented in labor disputes in the Southwest was taken Oct. 6 by non-union miners in Oklahoma, when they filed an intervening petition in connection with operators' application in the U. S. District Court at Oklahoma City for an injunction against the United Mine Workers to prevent interference with workers in Oklahoma mines. The application of the non-union miners was directed principally against the "prayer meetings" which union men have been holding in the vicinity of the mines since the strike was called on Sept. 1.

Lilley Mine on 1917 Scale

The Lilley Coal & Coke Co., with head offices in Charleroi, Pa., is reported to have started its Lilley Mine, near California, Pa., on Monday morning of this week on the 1917 wage scale. The normal complement of the mine is 400 men. This is the third company that has started operations on the 1917 scale in the Pittsburgh union district.

Eleven First-Aid Teams in Tennessee Meet

Tennessee's thirteenth annual first-aid contest was held Oct. 3, at the East Tennessee Division Fair, Knoxville, Tenn., under the auspices of the Southern Appalachian Coal Operators' Association, Tennessee Mine Inspectors, East Tennessee Fair Association and the U. S. Bureau of Mines.

Eleven teams were entered, the Pruden Coal Co. having three; Black Diamond Collieries Co., two; Campbell Coal Co., Clearfork Coal Co., Cambria Coal Co., Pioneer Coal Co., Lafollette Coal & Iron Co. and the American Zinc Co., one each.

The Cambria Coal Co. team took first prize, consisting of a silver loving cup donated by the Southern Appalachian Coal Operators' Association and \$28 in cash. Second prize went to the Pruden Coal Co.'s Valley Creek team, which received a loving cup given by the Provident Life & Accident Co., Chattanooga, and \$20 in cash; third prize to the Pioneer Coal Co., Kettle Island, Ky.; fourth prize to the Pruden Coal Co., Pruden, Tenn.

A feature of the meeting was a demonstration in a glass gallery of the explosibility of coal dust by George Grove, engineer of the U. S. Bureau of Mines, Pittsburgh, Pa.

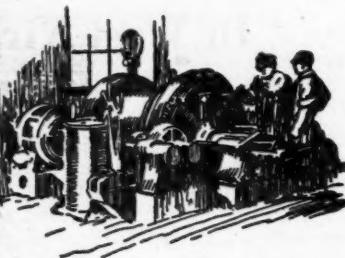
The contest was judged by Knoxville doctors. Dr. Kile Copenhaver was chairman, assisted by Dr. Merryweather, surgeon for the U. S. Bureau of Mines, Birmingham, Ala., and George K. Brown, technical engineer for the du Pont Powder Co., Huntington, W. Va.

R. E. Howe, secretary of Southern Appalachian Coal Operators Association, chairman of the general arrangement committee, and J. M. Webb, of the U. S. Bureau of Mines, trained the teams for the contest.

The National Coal Association has appointed the following committee to meet with the Trades Relations Committee of the American Wholesale Coal Association: A. W. Calloway (chairman), president, Davis Coal & Coke Co., Philadelphia; W. D. Ord, president, Empire Coal & Coke Co., Landgraff, W. Va.; H. N. Taylor, president, U. S. Distributing Corp., New York City, and Ezra Van Horn, general manager, Clarkson Coal Mining Co., Cleveland, Ohio. The American Wholesale Coal Association requested the National Coal Association to name a committee to confer with wholesalers on the subject of the open consignment of coal.



Practical Pointers For Electrical And Mechanical Men



Inexpensive Signal System Tells if Distant Fan Is Running

At Mine A of the Pike County Coal Corporation, Petersburg, Ind., the ventilating fan is located in a field about 900 ft. from the tipple and hoist house. This location makes it necessary to have an unfailing signal to indicate when the fan is in operation.

The signal system used is of the interrupted, closed-circuit type, as illustrated in Fig. 1. It consists of an incandescent lamp in series with an interrupting device on the fan shaft. The lamp is located in the hoist house, within normal range of vision of the engineer but shaded so that there is no irritating glare. The circuit is interrupted for about 1/25 of a second during each revolution of the fan shaft. This causes a perceptible winking of the lamp. The frequency of this winking indicates the fan speed, and failure to wink indicates that the fan has stopped or that the signal is out of order.

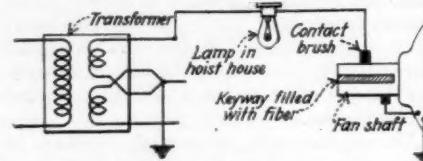


Fig. 1—Circuit Arrangement of Indicator

The lamp, located in the hoist house, is lighted continuously, except for a perceptible wink occurring once during each revolution of the fan. The indicator is connected to a grounded circuit, therefore but one line wire is necessary.

Inasmuch as the lamp is lighted from a grounded circuit, but one wire is carried from the hoist house to the fan. This wire is connected to a brush which makes contact to the periphery of the fan shaft. The keyway, which is in the path of the brush, is filled with fibre. The circuit is broken once during each revolution while the brush passes over this insulated section.

Fig. 2 is a close-up of the fan shaft and contact brush. The key-

way does not show because the fan was in operation while the photograph was being made. On the other end of the fan shaft there is a copper ground wire which makes a continuous brush contact to the shaft. This is to avoid any possibility of the signal current affecting the bearing surfaces.

Homemade Press Proves Extremely Handy

Forcing bushings into or out of wheels or bearings is a job that requires a reasonable amount of precision. While solid bushings of this nature sometimes can be driven into or out of place by means of a drift and sledge, this procedure is extremely liable to batter the soft brass or other metal and seriously interfere with its usefulness and life.

The accompanying illustration shows a bushing press made and used in the shops of the Orient No. 2 mine of the Chicago, Wilmington and Franklin Coal Co., at West Frankfort, Ill. As may be seen in the illustration this device is extremely simple in construction and consists of a U-shaped channel iron provided with a cross-brace near the top, also of channel iron. An adjustable support for the part which is to be bushed is made of two channel irons which span the opening of the U. The bottom also is provided with angle-iron feet holding the entire press in an upright position. A threadbar and handwheel complete the press.

By means of a series of holes drilled in the two legs of the uprights through which suitable pins pass, the transverse support upon which the part to be bushed is placed can be raised and lowered to suit the conditions encountered. The pins can readily be removed and the cross-piece adjusted up or down as may be desired. Such a device as this finds frequent use in coal mine shops where much repair work, especially

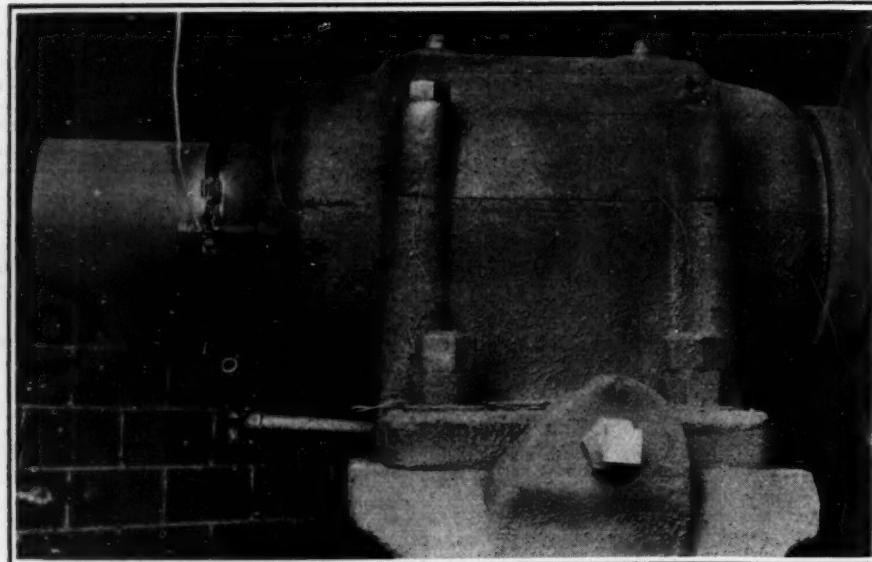
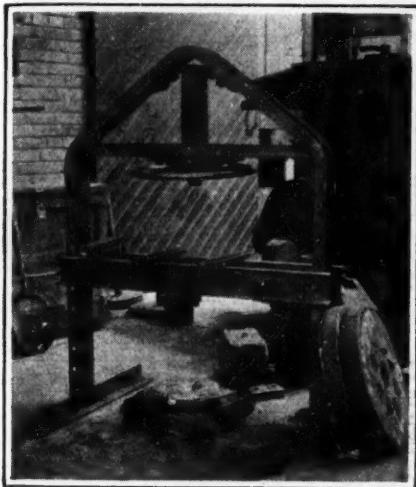


Fig. 2—Contact Brush of Indicator, Mounted on End of Fan Shaft

That part of the keyway which passes under the contact brush is filled with fiber. This insulated section causes the circuit to be broken for an instant during each revolution. On the other side of the fan a copper ground wire makes a continuous brush contact to the shaft, so that the signal current does not have to pass across the surface of the machine bearings.



Easily Adjusted to Suit Work

This device, built in the shop where it is now used, has been made of such a size as to accommodate practically any bushing work that the shop may be called upon to perform. The work support is easily adjustable up or down.

that on mining machines, locomotives and the like, must be performed. The particular device here shown has proved itself extremely handy in the shops at New Orient.

Special Bolt Serves as Bond Terminal

In so far as permanent track is concerned there seems to be little demand for a better or less expensive rail bond than those now available, but for temporary track, such as in rooms and in certain entries, there seems to be a demand for an inexpensive but effective bond which can be removed easily and which will be in condition for further use. The accompanying photograph, taken at Nisbet No. 11 mine of the West Kentucky Coal Co. at Earlington, is evidence of this demand.

This bond consists of a short length of No. 00 solid copper wire clamped to the rails by means of bolts of special design. The appli-

cation requires the drilling of a hole in the web of the rail, as is necessary also for bonds of the pin-driven, channel-pin, and compressed-terminal types. At the left in the illustration is the terminal of a bond which is in use, and at the right is one of the special bolts slipped onto a short piece of wire to show the method of installation.

PROVIDES BETTER CONTACT

The bolt is $\frac{1}{8}$ in. in diameter and $1\frac{1}{2}$ in. long, under the head. The hole for the No. 00 wire is drilled half in the head, and half in the shank, so that when the nut is tightened the wire is compressed between the bolt head and the web of the rail. This hole is $\frac{1}{8}$ in. in diameter, or about .01 in. larger than a No. 00 wire. The shank of the bolt is tapered between the end of the thread and the head, with the largest diameter at the head. The hole in the rail is the same diameter as the small end of the bolt, so that when the nut is tightened the bolt it pulled tightly into the hole. This feature provides for a better contact between the bolt and the rail and also helps to hold the bolt from turning while the nut is being tightened. The lock washer used is of the positive pattern.

Improvised Device Tightens Commutators Quickly

Loosening or tightening the flat headed cap screws holding the V-ring on the armature of a common mining machine usually is performed by the aid of a T-shaped screw driver and a wrench. This tool requires two men for its manipulation, one to push down on the screw driver and the other to operate the wrench. By this method it often takes two or three hours to



The Cap Screw Must Move

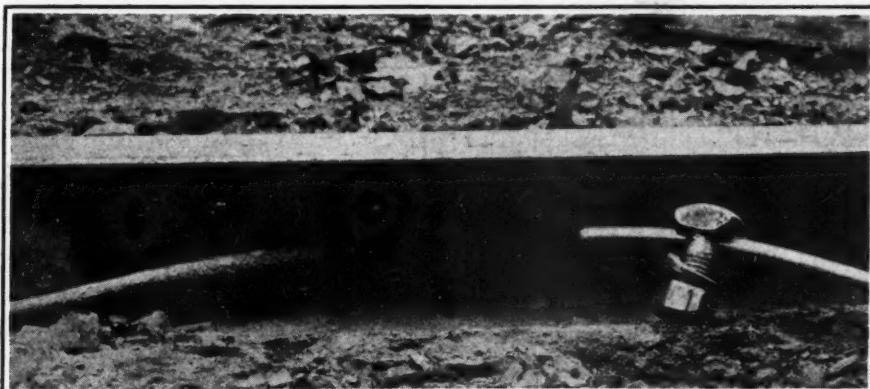
By the aid of this home-made device a commutator can be tightened by one man in fifteen minutes. He bears down on the lever with one hand and manipulates the ratchet screw driver with the other.

tighten up a commutator. A special tool for this purpose by means of which one man can do the same work in fifteen minutes is shown in the accompanying illustration.

CONSTRUCTION AND OPERATION

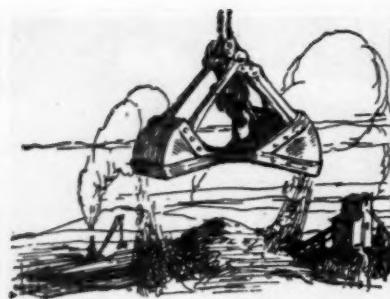
This tool consists of several parts. The first is a reversible ratchet into which is fitted a heavy screw driver bit. This ratchet is held down against the screw by means of a lever similar to a trolley pole. The lever fastens in a ring welded to the ball thrust on top of the ratchet and is anchored to the end of the shaft by means of a chain. A special fitting is provided at the lower end of this chain and screws into the tapped hole in the end of the armature shaft. This chain is fitted with a swivel to avoid twisting as the ratchet is moved from screw to screw around the circumference of the commutator during the tightening process. The man doing the work bears down on the outer end of the lever with one hand and operates the ratchet with the other. There is no slipping of the screw driver and no difficulty is experienced in exerting all the force upon the screws that they will stand.

This homemade device has been built and is used in the central repair shop of the Island Creek Coal Co. at Holden, W. Va. It is a typical example of some of the ingenious devices that have been developed in this shop.

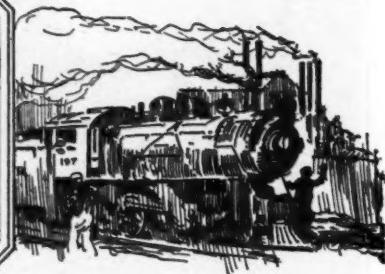


Close-Up of Bonded Rail and Bolt

At the right is a sample of the special bolt used in applying bonds such as that at the left. The hole in the bolt is large enough so that the No. 00 wire can be pushed through easily. Tightening the nut drives the tapered bolt into the hole in the rail and compresses the copper between the bolt head and the web.



Production And the Market



Bituminous Coal Market Shows Firm Tone; Prepared Sizes in Lead

A much better tone pervades the bituminous coal trade, thanks to the stimulating influence of biting autumn temperatures over a large portion of the country. Naturally enough, the firmness is most marked in screened and sized coals suitable for domestic use. Less change is in evidence in the steam-coal business, though railroad consumption is heavy. Movement to the lakes is especially heavy for this time of year, 3,323 carloads having passed through Cincinnati in this trade last week. Embargoes were necessary on the Pennsylvania and B. & O. lines because of congestion at Toledo and Sandusky.

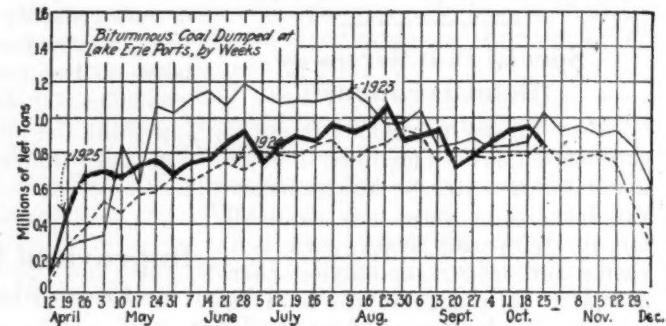
West Virginia smokeless is coming back strong, especially in the Middle West, where prices are mounting steadily. For that matter, Illinois and Indiana prepared coals are in such good demand that "no bills" are being cleaned up and unfilled orders are beginning to be in evidence. Screenings are a trifle weaker, however, due to the output having been too heavy for the market to absorb easily. Kentucky is getting better working time in all fields, some of the product replacing West Virginia coal now going to the East.

Seasonal briskness marks the trade at the Head of the Lakes and the Southwest. All-round firming up is in evidence at Cincinnati and the other Ohio markets also are somewhat stronger. Even Pittsburgh shows signs of a steady influx of strength. All the Eastern markets are steadily gaining except Baltimore, which is rather flat, and New England, where buying has eased off.

Despite rumors of a compromise being at hand, the end of the anthracite strike seems to be as far off as ever. The wholesale market has practically disappeared and retail stocks of domestic sizes, except of pea, are beginning to feel the strain of the lopsided movement. Buckwheat is still in plentiful supply, but tight-

ening, and the end of the stock of pea is said to be in sight. Coke is the headliner in demand as a hard-coal substitute, so much so that prices are steadily advancing, but the supply, even under forced pressure, can never hope to catch up with the present demand.

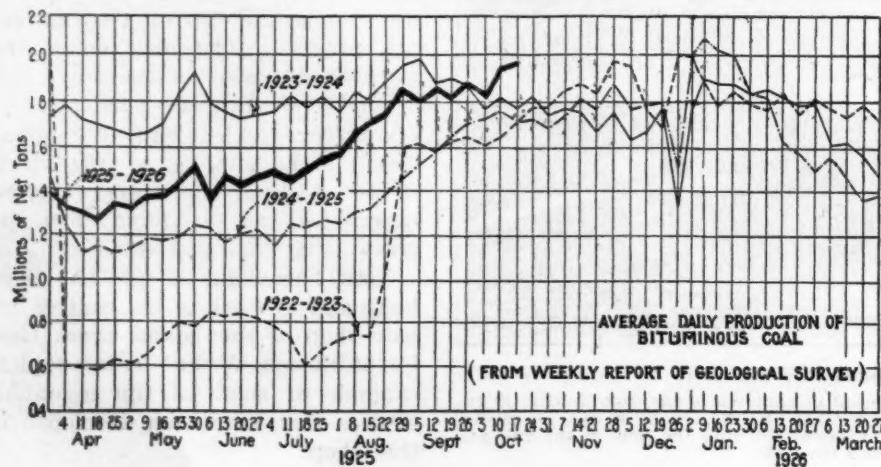
Output of bituminous coal during the week ended Oct. 17 is estimated by the Bureau of Mines at 11,767,000 net tons, which again exceeded that of any week since early last January. This compares with 11,681,000 tons produced in the preceding week, according to revised figures. Anthracite output in the week ended



Oct. 17 totaled 17,000 net tons, an increase of 4,000 tons over the previous week.

Coal Age Index of spot prices of bituminous coal on Oct. 26 stood at 178, the corresponding price being \$2.15, compared with 176 and \$2.13 the week before.

Dumpings at Lake Erie ports during the week ended Oct. 25, according to the Ore & Coal Exchange, were: Cargo, 809,488 net tons; steamship fuel, 41,208 tons—a total of 850,696 net tons, compared with 934,433 tons in the preceding week. Hampton Roads dumpings in the week ended Oct. 22 totaled 437,190 net tons, against 355,202 tons in the previous week.



Estimates of Production

(Net Tons)

BITUMINOUS

	1924	1925
Oct. 3.....	10,614,000	11,008,000
Oct. 10 (a).....	10,904,000	11,681,000
Oct. 17 (b).....	10,599,000	11,767,000
Daily average.....	1,767,000	1,961,000
Cal. yr. to date.....(c)	144,000	394,801,000
Daily av. to date.....	1,514,000	1,607,000

ANTHRACITE

	1924	1925
Oct. 3.....	1,425,000	14,000
Oct. 10.....	1,737,000	13,000
Oct. 17.....	1,750,000	17,000
Cal. yr. to date.....(c)	72,283,000	61,710,000

COKE

	1924	1925
Oct. 10 (a).....	127,000	203,000
Oct. 17 (b).....	147,000	226,000
Cal. yr. to date.....(c)	7,793,000	7,709,000

(a) Revised since last report. (b) Subject to revision. (c) Minus two days' production to equalize number of days in the two years.

Middle West Feels Better

A little snow and a drop of a few degrees in the temperature throughout the North and Northwest brought about an infinitely better feeling in the Midwest coal market last week. The demand for Illinois and Indiana prepared sizes took a spurt and gave most of the operators in those fields a nice volume of business. Some of them have actually cleared their tracks of "no bills" and have a satisfactory number of unfilled orders on their books, a condition which has not existed before this year. There is said to be very little coal in Iowa, as the trade there is buying strictly on a hand to mouth basis. Southern Minnesota is a little better off, as most dealers have reserve stocks. The same is true in South Dakota. Western Illinois and Wisconsin are depending upon current shipments to fill their needs, as practically no retail dealers have reserves.

Led by the smokeless operators of West Virginia, prices on Eastern coal in the Midwest market have advanced. Western sales agents of smokeless producers have not, however, increased their prices as much as they have been raised on such coals in the East. The price level today appears to be about \$5.50@\$6 for prepared sizes, although an increase can be expected. Smokeless mine-run has not reacted with the prepared sizes and good grades can be had in almost any quantities in Chicago at \$2.25@\$2.50 f.o.b. mines. High-grade West Virginia high-volatile coals

are moving out here priced at \$2.50@\$3; egg, \$2.25@\$2.50. Specialty coals from West Virginia and eastern Kentucky are selling at around \$4.

The steam coal market appears to have suffered a slight relapse; screenings were produced in such great volume that the market was not readily able to absorb the extra tonnage and prices weakened. There is considerable activity in the steam market, however, and it is expected to recover soon.

Colder weather has had its effect in southern Illinois and coal is moving out. Lump and egg appear to be oversold at most mines. No 1 nut is slow and the smaller sizes are heavy at the shaft mines. Railroad tonnage is just fair. The movement on the railroads is disappointing. Working time is good—four and five days a week as a rule in the Carterville field. The strip mines are working well except when wet weather interferes. Many mines in southern Illinois that have had a hard time on account of water shortage are beginning to get back to normal. There is no change in prices.

In the Duquoin field conditions show improvement; one mine is getting five and six days a week and the others four and five. All sizes except nut and screenings are moving in this field. No railroad tonnage is being shipped except from one mine. Strip properties are doing fairly well but prices are demoralizing. The Mt. Olive field has almost full working time, domestic sizes are moving un-

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

Low-Volatile, Eastern	Market Quoted	Oct. 27 1924	Oct. 12 1925	Oct. 19 1925	Oct. 26 1925†	Midwest	Market Quoted	Oct. 27 1924	Oct. 12 1925	Oct. 19 1925	Oct. 26 1925†	
Smokeless lump...	Columbus...	\$4.50	\$4.60	\$4.65	\$4.75@ \$5.00		Franklin, Ill. lump.....	Chicago...	\$3.35	\$3.25	\$3.25	\$3.25
Smokeless mine run...	Columbus...	2.35	2.55	2.55	2.55@ 2.65		Franklin, Ill. mine run.....	Chicago...	2.35	2.35	2.35	2.25@ 2.50
Smokeless screenings...	Columbus...	1.30	1.50	1.50	2.00@ 2.10		Franklin, Ill. screenings.....	Chicago...	1.35	1.60	1.60	1.50@ 1.75
Smokeless lump...	Chicago....	4.60	4.10	4.10	5.50@ 6.00		Central, Ill. lump.....	Chicago...	2.85	2.85	2.85	2.75@ 3.00
Smokeless mine run...	Chicago....	2.00	2.10	2.10	2.00@ 2.50		Central, Ill. mine run.....	Chicago...	2.20	2.10	2.10	2.15@ 2.25
Smokeless lump...	Cincinnati...	4.25	4.50	4.75	5.00@ 7.00		Central, Ill. screenings.....	Chicago...	1.15	1.55	1.55	1.35@ 1.75
Smokeless mine run...	Cincinnati...	2.25	2.35	2.50	2.50		Ind. 4th Vein lump.....	Chicago...	3.10	3.10	3.10	3.00@ 3.25
Smokeless screenings...	Cincinnati...	1.15	1.90	1.90	2.00		Ind. 4th Vein mine run.....	Chicago...	2.35	2.35	2.35	2.25@ 2.50
*Smokeless mine run...	Boston....	4.45	4.75	4.60	4.50@ 4.75		Ind. 4th Vein screenings.....	Chicago...	1.30	1.60	1.60	1.50@ 1.75
Clearfield mine run...	Boston....	2.00	1.90	1.95	1.75@ 2.10		Ind. 5th Vein lump.....	Chicago...	2.85	2.35	2.35	2.25@ 2.50
Cambria mine run...	Boston....	2.40	2.20	2.25	2.00@ 2.50		Ind. 5th Vein mine run.....	Chicago...	2.10	1.95	1.95	1.85@ 2.10
Somerset mine run...	Boston....	2.15	2.05	2.10	1.85@ 2.20		Ind. 5th Vein screenings.....	Chicago...	.95	1.40	1.40	1.35@ 1.50
Pool 1 (Navy Standard)...	New York...	2.75	2.85	2.85	2.75@ 3.00		Mt. Olive lump.....	St. Louis...	2.85	2.50	2.50	2.50
Pool 1 (Navy Standard)...	Philadelphia...	2.70	2.65	2.65	2.50@ 2.85		Mt. Olive mine run.....	St. Louis...	2.50	2.00	2.00	2.00
Pool 1 (Navy Standard)...	Baltimore...	2.60	2.30	2.30	2.10@ 2.20		Mt. Olive screenings.....	St. Louis...	1.35	1.75	1.75	1.75
Pool 9 (Super. Low Vol.)...	New York...	2.10	2.20	2.20	2.10@ 2.30		Standard lump.....	St. Louis...	2.85	2.25	2.25	2.25
Pool 9 (Super. Low Vol.)...	Philadelphia...	2.15	1.95	1.95	1.95@ 2.00		Standard screenings.....	St. Louis...	.80	1.15	1.15	1.15
Pool 9 (Super. Low Vol.)...	Baltimore...	1.90	2.05	2.15	1.90@ 2.00		West Ky. block.....	Louisville...	3.10	1.75	1.85	1.75@ 2.25
Pool 10 (H.Gr. Low Vol.)...	New York...	1.90	2.00	2.00	1.85@ 2.15		West Ky. mine run.....	Louisville...	1.65	1.30	1.35	1.20@ 1.50
Pool 10 (H.Gr. Low Vol.)...	Philadelphia...	1.75	1.85	1.85	1.75@ 2.00		West Ky. screenings.....	Louisville...	.65	.95	1.00	.85@ 1.25
Pool 10 (H.Gr. Low Vol.)...	Baltimore...	1.70	1.90	2.00	1.80@ 1.85		West Ky. block.....	Chicago...	2.75	2.05	2.05	1.85@ 2.25
Pool 11 (Low Vol.)...	New York...	1.60	1.80	1.80	1.75@ 1.90		West Ky. mine run.....	Chicago...	1.65	1.25	1.25	1.15@ 1.35
Pool 11 (Low Vol.)...	Philadelphia...	1.45	1.70	1.70	1.60@ 1.80							
Pool 11 (Low Vol.)...	Baltimore...	1.60	1.70	1.80	1.50@ 1.60							

High-Volatile, Eastern

Pool 54-64 (Gas and St.)...	New York...	1.55	1.60	1.55	1.55@ 1.60
Pool 54-64 (Gas and St.)...	Philadelphia...	1.50	1.60	1.60	1.50@ 1.70
Pittsburgh sc'd gas...	Pittsburgh...	2.40	2.50	2.50	2.75
Pittsburgh gas mine run...	Pittsburgh...	2.10	2.15	2.15	2.25@ 2.35
Pittsburgh mine run (St.)...	Pittsburgh...	1.85	2.05	2.05	2.05@ 2.25
Pittsburgh slack (Gas)...	Pittsburgh...	1.20	1.55	1.55	1.35@ 1.50
Kanawha lump...	Columbus...	2.55	2.60	2.60	2.45@ 2.80
Kanawha mine run...	Columbus...	1.50	1.70	1.70	1.55@ 1.85
Kanawha screenings...	Columbus...	1.00	1.30	1.30	1.25@ 1.40
W. Va. lump...	Cincinnati...	3.00	2.60	2.60	2.50@ 3.00
W. Va. gas mine run...	Cincinnati...	1.55	1.65	1.65	1.60@ 1.65
W. Va. steam mine run...	Cincinnati...	1.45	1.55	1.55	1.50@ 1.60
W. Va. screenings...	Cincinnati...	.95	1.25	1.25	1.10@ 1.25
Hocking lump...	Columbus...	2.55	2.70	2.70	2.50@ 2.90
Hocking mine run...	Columbus...	1.55	1.65	1.65	1.50@ 1.85
Hocking screenings...	Columbus...	.90	1.30	1.30	1.25@ 1.40
Pitts. No. 8 lump...	Cleveland...	2.40	2.35	2.35	2.20@ 2.75
Pitts. No. 8 mine run...	Cleveland...	1.85	1.85	1.85	1.95@ 2.00
Pitts. No. 8 screenings...	Cleveland...	1.00	1.25	1.25	1.30@ 1.40

South and Southwest	Birmingham...	3.10	2.25	2.25	2.00@ 2.50
Big Seam lump.....	Birmingham...	3.10	2.25	2.25	2.00@ 2.50
Big Seam mine run.....	Birmingham...	1.60	1.80	1.80	1.60@ 2.00
Big Seam (washed).....	Birmingham...	1.85	1.85	1.85	1.75@ 2.00
S. E. Ky. block.....	Chicago...	2.85	3.00	3.00	2.75@ 3.25
S. E. Ky. mine run.....	Chicago...	1.60	1.95	1.95	1.85@ 2.10
S. E. Ky. block.....	Louisville...	3.25	2.60	2.60	2.50@ 3.00
S. E. Ky. mine run.....	Louisville...	1.60	1.50	1.50	1.40@ 1.65
S. E. Ky. screenings.....	Louisville...	.85	1.20	1.25	1.20@ 1.35
S. E. Ky. block.....	Cincinnati...	3.10	2.85	2.80	2.75@ 3.75
S. E. Ky. mine run.....	Cincinnati...	1.55	1.60	1.60	1.50@ 1.75
S. E. Ky. screenings.....	Cincinnati...	1.00	1.25	1.30	1.10@ 1.35
Kansas lump.....	Kansas City...	5.00	4.50	4.50	4.50@ 4.75
Kansas mine run.....	Kansas City...	3.10	2.85	2.85	3.00
Kansas screenings.....	Kansas City...	2.00	2.40	2.40	2.25@ 2.85

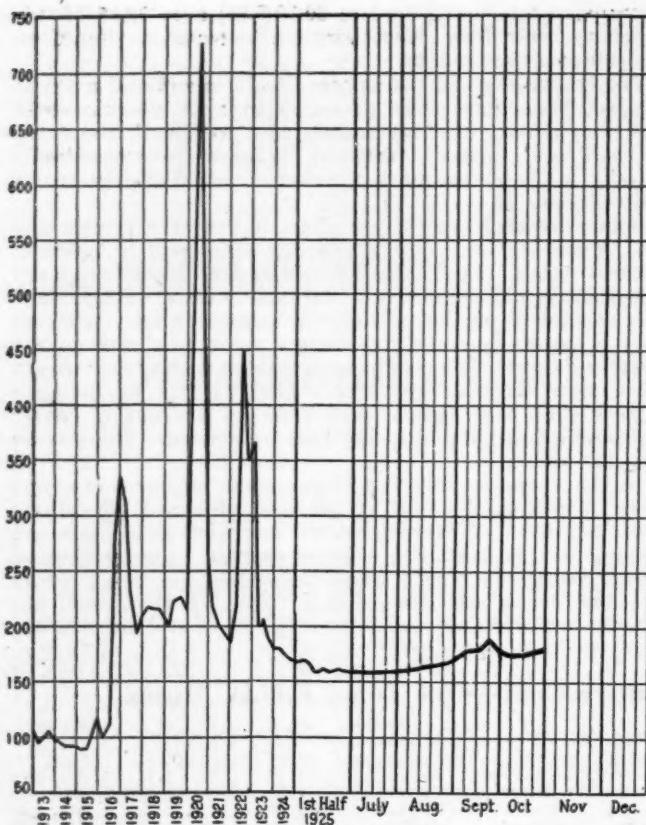
* Gross tons, f.o.b. vessel, Hampton Roads.

† Advances over previous week shown in heavy type; declines in italics.

Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

Market Quoted	Freight Rates	Oct. 27, 1924	Oct. 19, 1925	Oct. 26, 1925†
Independent	Company	Independent	Company	Independent
Broken...	New York...	\$2.34	\$8.00@ \$9.25	\$8.20@ \$8.95
Broken...	Philadelphia...	2.39	9.15	
Egg...	New York...	2.34	9.25@ \$9.75	8.65@ 8.90
Egg...	Philadelphia...	2.39	9.25@ \$9.75	
Egg...	Chicago*	5.06	8.17@ 8.27	8.14@ 8.20
Stove...	New York...	2.34	10.00@ 10.50	8.75@ 9.50
Stove...	Philadelphia...	2.39	9.85@ 10.25	9.15@ 9.50
Stove...	Chicago*	5.06	8.63@ 8.75	8.50@ 8.64
Chestnut...	New York...	2.34	9.50@ 10.25	8.75@ 9.25
Chestnut...	Philadelphia...	2.39	9.65@ 10.00	9.15@ 9.25
Chestnut...	Chicago*	5.06	8.26@ 8.40	8.44@ 8.60
Pea...	New York...	2.22	5.25@ 5.50	5.50@ 6.00
Pea...	Philadelphia...	2.14	5.75@ 6.35	5.75@ 6.00
Pea...	Chicago*	4.79	5.13@ 5.45	5.36@ 6.20
Buckwheat No. 1...	New York...	2.22	2.25@ 2.75	3.00@ 3.15
Buckwheat No. 1...	Philadelphia...	2.14	2.50@ 3.00	3.00
Rice...	New York...	2.22	1.80@ 2.15	2.00@ 2.25
Rice...	Philadelphia...	2.14	2.00@ 2.25	2.25
Barley...	New York...	2.22	1.25@ 1.50	1.50
Barley...	Philadelphia...	2.14	1.50	1.50
Birdseye...	New York...	2.22	1.35@ 1.60	1.60

* Net tons, f.o.b. mines. † Advances over previous week shown in heavy type; declines in italics.



Coal Age Index of Spot Prices of Bituminous Coal F.O.B. Mines

	1925	1924
Index	Oct. 26 178	Oct. 19 176
Weighted average price	\$2.15	\$2.13

This diagram shows the relative, not the actual, prices on fourteen coals, representative of nearly 90 per cent of the bituminous output of the United States, weighted first with respect to the proportions each of slack, prepared and run-of-mine normally shipped, and, second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke; 1913-1918," published by the Geological Survey and the War Industries Board.

usually well and steam has shown considerable improvement.

In the Standard district there is an increased demand and working time has shown some improvement, but prices are still about cost. Many mines are still idle and are afraid to resume at the present prices. All mines have some kind of "no bills" on hand every night and steam is not moving well, which is why some mines are idle. There is no change generally in prices.

Colder weather has caused a good demand for domestic coal in St. Louis. All grades, including Carterville, Mt. Olive and Standard, seem to be moving fairly well. All dealers have ample supplies of anthracite to pull them through the winter, but there seems to be no real demand for it. Coke is moving fairly well and smokeless is pretty well used up, but there is no unusual demand for that. Country domestic is good principally on middle grades. There is a feeling that Franklin County and Carterville are too high and the fact that western Kentucky is quoted at about \$2 at the mine with a 25c. higher rate—which means \$1 per ton less delivered than Franklin County—is encouraging the use of that coal. Country steam is quiet. St. Louis wagonload is unusually good; carload is fairly active but the demand is not equal to the supply. There has been no change in price.

General Condition Better in Kentucky

Steady cold weather in Kentucky last week resulted in a much better demand for prepared sizes, resulting in better general conditions in the coal market. "No bills" and distress fuel are being absorbed, the fag end of the season finds a good deal of coal being shipped to lake ports, and as a whole business is a trifle better than it has been.

Utility, industrial, railroad and general steam demand is good and screenings are being kept fairly well cleaned up, although prices are a shade lower than they were last week

on screenings. Other prices are just about as they have been for the past several days, although block is a little stronger. Railroad consumption has been especially heavy.

The anthracite situation is moving more West Virginia smokeless coal East, enabling eastern Kentucky operators to get business in replacing smokeless. Better operating time is reported in all state fields, with unbilled coal reduced to a minimum.

Northwest Continues Active

Activity continues in the coal trade at Duluth-Superior. All of the docks operate with full crews on their loading sides. Operators have, however, noted that retailers seem to have stocked heavily. Demand from industrial companies over Minnesota and northern Wisconsin is still good. Foundries have been especially good buyers of steam and gas coal together with hydro-electric power companies which foresee water-power shortage.

Considerable anthracite has been distributed from the docks lately. Stocks of hard coal probably will be fairly well cleaned up by about Feb. 1. However, the docks are planning to reserve certain tonnages for the use of consumers unable to use bituminous coal. A survey of conditions has shown that more orders have been booked for Pocahontas and other smokeless coals than ever before in the history of the trade.

The movement of coal from Lake Erie ports to Duluth-Superior has continued in good volume. Thirty-seven bituminous cargoes have unloaded at the docks during the last week, and eighteen cargoes were reported to be en route. Prices are practically unchanged in both anthracite and bituminous coals. Domestic coke is in more active demand as an anthracite substitute and its price is unchanged at \$8.50. Briquets are beginning to move at \$9.

The coal market in Milwaukee seems to be irregular. Comparative slowness is reported from the docks, though retailers report a brisk demand. There is a demand for anthracite now that stocks here virtually are exhausted. Notice of a prospective advance in Pocahontas comes from the mines, and retailers will, of course, promptly pass the advance to the consumer, who now is paying \$13 for nut when carried to the bins, or \$12.25 shoveled, and \$13.50 and \$12.75 for egg. Lake cargo receipts at Milwaukee up to Oct. 23 total 2,934,934 tons—488,234 tons of anthracite and 2,446,700 tons of bituminous coal. The total for the same period in 1924 was 2,600,748 tons—667,254 tons of anthracite and 1,933,494 tons of bituminous coal. During the month of September Milwaukee received 3,650 tons of hard and 34,361 tons of soft coal by all-rail routes.

Coal Business Brisk in Kansas

Snappy fall days have been making brisk business for the coal trade in the Southwest. Householders who were not to be persuaded to buy early have been putting in rush orders, and as a result the price of Kansas lump was advanced Oct. 19 by some producers to \$4.75. Kansas is profiting most since it is the only state of the Southwestern district where production is stable, but more miners are returning to work in Oklahoma and Arkansas and operators there are finding a ready market for all the coal they can mine. Screenings are inclined to drag, but with the price for the Kansas product reduced to \$2.35, some operators quoting \$2.25, and some others even less, no heavy surplus has accumulated.

Cold weather during the past ten days has increased the demand for Colorado furnace coal. This has reduced retailers' stocks and, consequently, increased orders. Demand for lump now exceeds production. As the nut sizes are rather slow to move, steam call is brisk. Demand is good for Colorado anthracite.

In Utah the mines are working a little better than half time. Larger sizes of coal are selling best. The grade known as domestic lump is leading, but straight lump is in good demand, too. Slack is being dumped now, and nut is dragging the market. As a result of the nut coal accumulations some mines have had to go on short time. The car situation is not entirely satisfactory. H. F. Fernstrom, president of the Utah-Idaho Coal Dealers' Association, estimates that Salt Lake City coal dealers have about 35,000 tons of coal in their yards at the present moment. This is a little more than last year, but consumers take it slowly. Prices remain firm.

Smokeless Skyrockets at Cincinnati

Eastern orders, favorable weather and conditions at the seaboard all contributed to throw domestic sizes of smokeless further off balance at Cincinnati last week and the skyrocketing of five or six weeks ago wasn't a patch in comparison. Lump, egg and nut for Eastern delivery wobbled somewhere between \$5.50 and \$7 a ton. Again egg was in the lead with nut a close competitor and lump also moving along. Inland markets failed to become unduly excited, most of the "regular" dealers being disposed to bide their time rather than force the issue. Declarations of "sold up" were met with orders for future datings. Mine-run and slack strengthened a wee bit, knocking out existing spreads.

Embargoes to the lakes by the Pennsylvania and B. & O. lines because of a jam of cars at Toledo and Sandusky helped tremendously to steady the high-volatile market, which for a couple of weeks showed signs of wobbling. Happily, this coal was sacrificed within a given area and did not force other markets out of plumb. Under the reflection of the low-volatile upturn domestic sizes stiffened up a bit. The "lows" on Hazards, Harlans, Elkhorns, Thackers and high-grade Kanawhas were virtually wiped out. Slack has weakened, however, \$1.10 low grades again being "peddled."

Movement still continues at the top notch with 14,493 cars going through the Cincinnati gateways last week, according to the American Railway Association. This was 27 cars more than the week before and 682 more than the corresponding week of last year. Of these 3,323 cars went to the lakes, 184 cars less than in the preceding week, but a record breaker for this time of year.

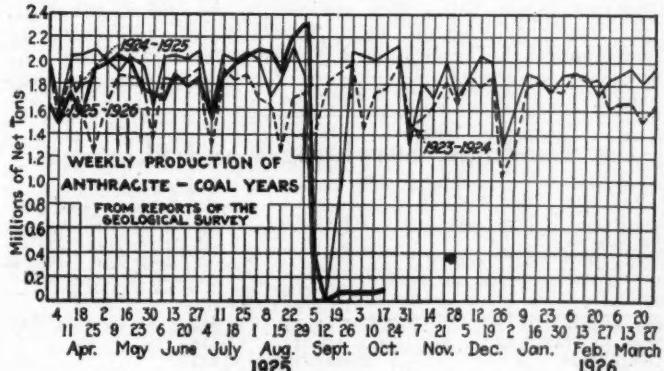
Colder weather has stimulated the domestic demand at Columbus and producers as well as shippers report a better trade with dealers. The bulk of the business is for smokeless, splints and Kentucky block, although there is a fair volume of orders for Hocking and Pomeroy lump. Retail prices are steady with smokeless at \$8.75@\$9.25; splints, \$6.75@\$7.25 and Hocking lump around \$6. Kentucky grades are selling at about \$7.25. Little free coal is on the local market, as the lake trade is taking all the surplus.

Steam business does not share in the activity of domestic sizes. Users are gradually building reserves up to normal but this buying has had little effect on the market. A number of short-term contracts were made recently, in most cases expiring April 1. Some of the larger users are buying on the open market, notably the Ohio Department of Welfare, which consumes about 225,000 tons of nut, pea and slack in the twenty-five state institutions.

Spot prices stiffened all along the line in eastern Ohio last week, due to much colder weather and the stronger demand in general for both steam and domestic fuel. A much better tone prevails all around. Retail yards have been drawing heavily upon stocks to supply the increase in domestic orders and have already begun replacement orders. Smokeless fuels from non-union mines to the south also have stiffened; Pocahontas lump is quoted at \$5 f.o.b. mines.

The railroads have increased their commitments during the past week and are now taking a larger percentage of eastern Ohio coal. The volume of late season Lake shipping has kept up well too.

Output in eastern Ohio during week ended Oct. 17 was 287,000 tons, a decrease of 13,000 tons as compared with the preceding week, and about 41 per cent of potential capacity. This was 66,000 tons under the corresponding week a year ago.



Market Stiffens at Pittsburgh

The Pittsburgh district coal market has been growing stronger daily. Eastern demand has even invaded this district. There is almost no demand for mine-run, either gas or steam. Buyers in search of a particular size of coal freely pay prices asked, egg actually selling above lump.

There is little if any differential on gas coal above steam, because of the demand coming from outside the regular distribution area for coal for domestic consumption. Slack naturally has sold off, with heavier shipments of lump.

At Buffalo bituminous coal has not began to feel the effects of the strike yet. Just now a stir is appearing in all sorts of egg-size bituminous, high-volatile as well as smokeless, but this hurts slack, which is often selling close to \$1 and is hard to sell anyhow. When the lakes close, which they will do soon, the situation will be still worse. Prices are fully as weak as they have been at any time since the strike began, so the wise wholesaler tries to sell the coal as house fuel.

New England Trade Easier

Except on screened sizes of bituminous the market in New England is extremely quiet. Buying has eased off in most directions and neither industries nor utilities are showing much interest in current prices. The trade hardly looks for improvement in November, and even a continuing anthracite strike is not expected to lift bituminous in general from the dullness that is its present characteristic.

Accumulations at Hampton Roads still are the rule. Nearly 300,000 tons of low volatile is understood to be on cars awaiting boats and spot demand is extremely light. Most of what smokeless coal is dumped is being applied on coastwise contracts, there being only occasional sales at the present range of \$4.50@\$4.75 per gross ton f.o.b. vessel for navy standard Pocahontas and New River. Smokeless slack is being offered on a basis of \$1.25 per net ton at the mines, with few takers.

For delivery inland from Boston and Providence prices are easy at \$5.85@\$6 per gross ton on cars. There is only scattering demand, and most factors are piling up storage from current receipts.

The only active feature of the market is the steady call for prepared sizes. Pocahontas and New River lump and egg are now arriving here, but not as yet in anything approaching large volume. The operators and sales agents are exacting \$6 and upward per net ton, and this, added to the high freight rate all-rail, has the effect of slowing up sales, a development that has been brought forcibly to the attention of factors who allowed coal to come forward in advance of sale. Prepared sizes all-rail from central Pennsylvania, however, have been in good request at prices running all the way from \$5.50 to \$7 per net ton at the mines. The minimum Clearfield rate opens a large territory to these coals, but there is danger that here, too, the shipper will overreach.

For Pennsylvania run of mine all-rail there is no better demand than a month ago.

Active Demand at New York

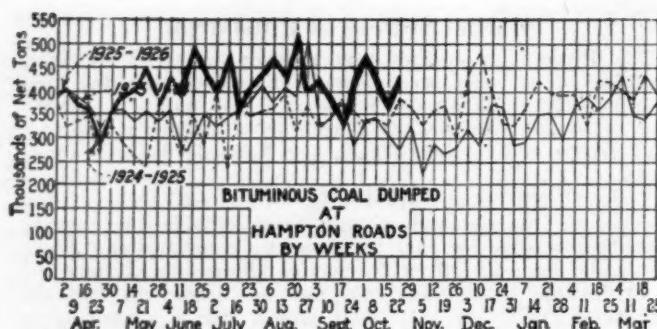
At New York in addition to a heavy run of mine-run coals there is an active demand for screened bituminous coals from central Pennsylvania and the Southern fields. As operators in Pennsylvania are well sold up the trade is turning toward the Pocahontas and New River fields for substitutes to take the place of anthracite.

Reports that the hard coals are nearly all cleaned up and fears that the strike may continue for some weeks has caused considerable anxiety among consumers, who are being advised by state and local authorities to burn substitutes.

Industrial consumers of bituminous coal continues to increase their reserves but the added demand has not yet changed prices from the levels current for the past few weeks.

Broad Top operators are finding a ready market for their prepared coals, which are quoted at \$7.50@\$9. High-volatile $\frac{1}{2}$ lump is quoted at \$1.60@\$2 and low-volatile lump at \$4@\$5, according to size. Pool 15 is quoted at \$1.75.

Quotations by local houses for prepared sizes of Pocahontas and New River coals range around \$7 for nut and egg.



Any evidence of better buying in the Philadelphia soft-coal market is confined to grades adapted to domestic purposes. Low-volatile Pennsylvania sized grades are hard to get and prices run from \$4 to \$5 a ton, with a tendency to rise daily. Pittsburgh seam gas coals in sizes also are in very strong demand, and prices, which were \$2.25 a week or two days ago, have moved up to \$3.

Since the new freight rate on Pocahontas coals became effective the first sized coals from that field have appeared, and quite a good business has been closed. Prices started at \$5 for egg, stove and nut, and in a few days were quickly advanced to \$6.

In the mine-run grades there is practically no change, industrial users feeling that they can get all they want at any time.

Except for prepared sizes, which are being used as substitutes for anthracite, the Baltimore bituminous market is again somewhat flat. Prepared sizes are very active, prices being frequently around \$5.50 or better the net ton. A downward trend in both demand and prices on the regular runs of both gas and steam coals is due partly to a surplus having piled up. Coke is active and the price headed skyward. The export movement continues light, there having been but three shipments between Oct. 1 and 13.

At Birmingham there is a very active demand for all the better grades of commercial fuel and a large number of the mines in the Cahaba and Warrior fields are operating full time. Inquiry and consumption in the general industrial field have increased and buying in the spot market is showing steady gains. No contracting worth mentioning is being done, though there is a good movement on contracts closed earlier in the year. Most of this coal is for current use, very little tonnage going into reserve. While the cheaper grades of fuel are not as actively sought, mines of this class are getting sufficient business to operate three to five days a week. Quite a few operations in the district are still idle, production being approximately 400,000 net tons weekly.

While there has been a noticeable improvement in the open market for domestic sizes within the last two weeks, sales have not yet reached a volume adequate to meet current production, which is not being moved without effort and some delay.

The market for foundry coke has stiffened in the last week or so with quotations for spot byproduct and beehive going to \$5.50 ovens. Inquiry and bookings are good also for domestic nut and egg coke, the entire production being required to meet the demand, the former being quoted \$4.25 and the latter \$4.50 ovens.

Hard-Coal Trade Shifting to Substitutes

Contradictory statements as to the amount of anthracite lying in cars on the railroads has created some uncertainty in the minds of New York consumers as to the quantity available and as to the truthfulness of statements that there is a scarcity of fuel. Coal men generally assert that the favorite sizes are pretty well cleaned up, but reports in the daily papers that there are at least 1,000 cars of various sizes on the tracks near Scranton have engendered a feeling that operators are holding back shipments in order to obtain high prices.

Retail dealers with few exceptions are short of all domestic sizes except pea. They are advising customers to take in buckwheat to mix with the larger sizes in their bins. A few boatloads of pea are reported in the harbor with quotations high and few buyers. Independent buckwheat coals are quoted as high as \$4 along the line.

Demand for coke is so heavy that manufacturers cannot promise prompt shipments. Quotations have advanced rapidly in the last few weeks and quotations are given subject to change at any time. Quotations for all sizes of byproduct coke range as high as \$10 at the ovens, with furnace coke quotations ranging at \$7@\$8 at the ovens.

Screened bituminous coals are in fair demand as substitutes, but the supply is growing tighter as the hard-coal strike continues.

Some light shipments of pea coal are being received at Philadelphia, but the one big company shipper that has any left in storage estimates that by the end of next week all of its coal will have been sent to market. The retail price is about \$12, a few asking \$12.50. There is a plentiful supply of buckwheat, but even this size is tightening up. The Reading company last week advanced the price of buckwheat from \$2.75 to \$3 a ton.

Coke is extremely difficult to get, and the price has moved from \$5 a month ago to around \$9.50 and \$10, and not much is to be had at that.

Little hard coal is left in Baltimore yards for delivery, but the Baltimore public is not at all excited over the situation, largely because of the proximity of soft-coal fields that can supply large quantities of prepared sizes of bituminous. Prices of anthracite, when it can be gotten, are around the levels that have prevailed for some time past, although in a few cases there may be some slight advances recorded in individual sizes. The Baltimore City Council has passed an ordinance introduced through the Baltimore Coal Exchange which will allow local dealers to sell hard coal in units of 2,000 lb. instead of the gross ton of 2,240 lb., as required under a state law.

Lake anthracite shippers at Buffalo say it looks as if there would be no more of it for that branch of the trade this season. About 2,000,000 tons has been shipped and the upper lake districts probably will have to get along without any more. Some of the dealers in near-by towns still have more or less coal, which they laid in while it was to be had. As a rule they are selling it in small amounts at considerable premium. For some reason the Buffalo trade did not buy any and shut off deliveries just as soon as the strike began. Coke is hard to get for less than \$13 and prices are steadily advancing. Semi-anthracite producers are trying to get into this trade.

Advances Still Feature Coke Market

The Connellsville coke market has continued to advance because of buying by Eastern jobbers. The turnover has not been as heavy, but supplies being so well absorbed, lighter buying has just as much effect on prices. There also has been buying by regular industrial consumers both in the Pittsburgh district and toward the west.

By Monday of last week \$8 had been paid, though operators had not obtained so much. By Thursday some operators had obtained \$8—even \$8.50 in a few cases—and Eastern jobbers had paid up to \$8.75 if not \$9.

Foundry coke has had no market of its own. Foundries have not taken kindly to advanced quotations and have been holding off, but the asking price advances along with prices realized on 48-hour coke, and enough production is switched from 72-hour to 48-hour to equalize. Furnace coke may be quoted conservatively at \$8@\$9 and foundry coke at the same range, both for practically spot shipment. There is, of course, no market for extended deliveries. The market is taken entirely out of the iron and steel trade. Furnaces are covered by contract to the end of the year and cannot think of trying to buy for first quarter. Pig-iron consumers, fairly well covered to the end of the year, are simply holding off as to first quarter, preferring to take chances. The Standard Sanitary Manufacturing Co., however, succeeded in covering for first quarter at old prices.

Car Loadings, Surplusages and Shortages

	Cars Loaded		
	All Cars	Coal Cars	
Week ended Oct. 10, 1925.....	1,106,099	184,331	
Previous week.....	1,112,463	174,317	
Week ended Oct. 11, 1925.....	1,088,956	198,840	
<hr/>			
	Surplus Cars		Car Shortage
	All Cars	Coal Cars	
Oct. 8, 1925.....	136,009	58,256	
Sept. 30, 1925.....	140,842	61,370	
Oct. 7, 1924.....	103,730	52,643	

Foreign Market And Export News

All-Round Betterment in Tone Appears In British Coal Market

After several weeks of disappointment through fogs and storms, delaying the arrival of the steamers, shipping conditions at the Welsh coal port show a fairly substantial improvement. Standing stocks are enormous, and through failure to effect prompt clearance of wagons, collieries are held up from day to day in various parts of the steam coal area, particularly in Monmouthshire.

The aggregate trade is approximately two-thirds of that of the corresponding period in 1923 and at least 50,000 Welsh miners are unemployed, while many thousands more are engaged only two or three days a week. It seems that orders are coming forward more freely at the reduced prices recently asked for Welsh coal—especially from the Continent.

A much better tone has developed in the Newcastle coal market with the advent of October. Inquiry all round has improved, especially in best steams. Prices are firm and in many instances are now on the top grade. The coal position also is improving, the best classes being well booked, and bunker coals are firmer. Indications point to a steadier trade on the whole for the rest of the year. A fair amount of business has been passing in the contract market.

Production of British coal during the week ended Oct. 10, according to a special cable to *Coal Age*, totaled 4,685,000 gross tons, compared with 4,620,000 tons in the preceding week.

Belgian Trade Slightly Better

Industrial coals continue to be in small request in the Belgian market, though there has been a slight improvement. Prices are still sagging, having fallen so low that it seems difficult for them to go lower. The situation is made worse by increasing foreign competition.

Good semi-bituminous coals and smalls for cement and lime making are much inquired for and in lean smalls there is still nothing to dispose of. Briquets are rather dull and will certainly not

be improved by a rise in the price of pitch, which is foreseen for this month.

There is no abatement in the excellent demand for domestic fuels; for anthracite it may even be termed very strong, especially from France. The scarcity of supplies is causing prices to go higher. Prices quoted for coke are nominal.

Prices for industrial coals have been reduced 2 fr. on semi-washed half-bituminous smalls, washed lean smalls, and coking smalls; 7 fr. on washed half-bituminous smalls; 3 fr. on half-bituminous and lean peas; 2 fr. 50c. on briquets.

For domestic coals increases have been made of 5 fr. on half-bituminous through coal, 50-60 per cent; 10 fr. on half-bituminous and anthracite beans; 15 fr. on half-bituminous nuts, anthracite nuts and anthracite cobbles; 5 fr. on half-bituminous cobbles.

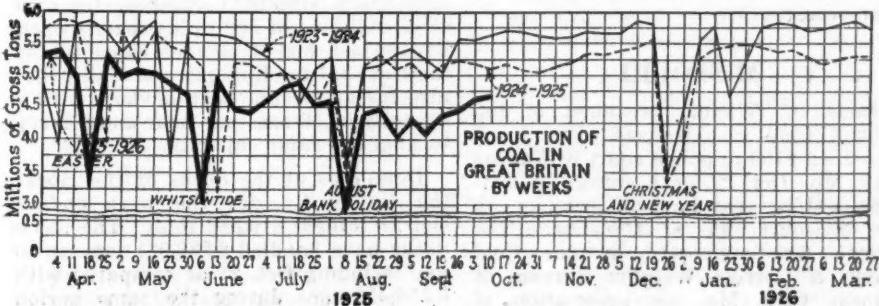
Industrial Coals Reviving in French Market

In the French coal market a revival in the textile and glass-making trades is making itself felt in the consumption of industrial coals. In domestic grades the situation is even better than might have been hoped for a few months ago.

The Nord and Pas-de-Calais collieries having finally agreed to raise to 40 per cent the "living costs bounty," the prices of certain sorts of coals—sized coals particularly—will be increased, but, quotations on the whole will not be greatly modified.

Imports of free German coals, which can be brought into France only under special import permits, have not been important thus far, as the French Government has been desirous that such German fuels purchased on the free market be considered as "prestations in kind" and paid for by the Payment Agent of the Reparation Commission, as in the case for indemnity coals.

The Germans were at first unwilling to accede to this demand, but the pressing necessity of selling their coals seems to have put them in a more conciliatory frame of mind.



Normal Tone at Hampton Roads

Hampton Roads business is about the same as last week, except that coastwise movement is somewhat stronger. Approaching cold weather in some sections gives promise of a livelier market and has a slight tendency to strengthen prices. Foreign trade is falling off, but bunker business is about normal.

Movement to Canada, which had strengthened the market for months, has fallen to a minimum, due to shipments of Welsh coal. None of it has come this way, however. The tone of the market is fairly strong—approximately normal for this season.

Export Clearances, Week Ended Oct. 24, 1925

FROM HAMPTON ROADS

	Tons
For Newfoundland:	
Nor. Str. Tosto, for St. John's.....	2,013
For Cuba:	
Dan. Str. Rolf, for Santiago.....	2,007
Br. Str. Sheaf Spear, for Havana....	4,600
For Jamaica:	
Br. Str. Baron Douglas, for Kingston	2,160
For Canal Zone:	
Amer. Str. Achilles, for Cristobal....	12,054
For Italy:	
Ital. Str. Fortunato, for Bagnoli....	6,202
For Martinique:	
Br. Str. Hollypark, for Fort de France	4,965

FROM BALTIMORE

For Cuba:	
Am. Schr. Dunham Wheeler, for Cape Francis, Cuba	2,803
For Porto Rico:	
Am. Schr. Evelyn, for Port Real....	375

FROM PHILADELPHIA

For Cuba:	
Br. Str. General Lukin for Antilla...	

Hampton Roads Pier Situation

(Gross Tons)

N. & W. Piers, Lamberts Pt.:	Oct. 15	Oct. 22
Cars on hand.....	1,674	1,707
Tons on hand.....	105,423	110,637
Tons dumped for week.....	119,882	121,568
Tonnage waiting.....	10,000	12,000
Virginia Piers, Sewalls Pt.:		
Cars on hand.....	1,577	1,258
Tons on hand.....	125,050	100,850
Tons dumped for week.....	81,595	117,311
Tonnage waiting.....	7,513	23,531
C. & O. Piers, Newport News:		
Cars on hand.....	2,873	2,781
Tons on hand.....	145,765	140,535
Tons dumped for week.....	115,686	151,469
Tonnage waiting.....	17,650	13,350

Pier and Bunker Prices, Gross Tons

PIERS

	Oct. 17	Oct. 24*
Pool 1, New York....	\$5.35@ \$5.60	\$5.35@ \$5.60
Pool 9, New York....	5.00@ 5.25	5.00@ 5.25
Pool 10, New York....	4.75@ 5.00	4.75@ 5.00
Pool 11, New York....	4.45@ 4.70	4.45@ 4.70
Pool 9, Philadelphia....	4.85@ 5.05	4.85@ 5.05
Pool 10, Philadelphia....	4.55@ 4.75	4.55@ 4.75
Pool 11, Philadelphia....	4.35@ 4.55	4.35@ 4.55
Pool 1, Hamp. Roads....	5.00	4.75@ 4.90
Pool 2, Hamp. Roads....	4.75	4.60
Pools 3-6-7, Hamp. Rds.	4.50	4.50

BUNKERS

	Oct. 17	Oct. 24*
Pool 1, New York....	\$5.60@ \$5.85	\$5.60@ \$5.85
Pool 9, New York....	5.25@ 5.50	5.25@ 5.50
Pool 10, New York....	5.00@ 5.25	5.00@ 5.25
Pool 11, New York....	4.70@ 4.95	4.70@ 4.95
Pool 9, Philadelphia....	5.05@ 5.25	5.05@ 5.25
Pool 10, Philadelphia....	4.75@ 4.85	4.75@ 4.85
Pool 11, Philadelphia....	4.60@ 4.75	4.60@ 4.75
Pool 1, Hamp. Roads....	5.10	4.75@ 4.90
Pool 2, Hamp. Roads....	4.85	4.70
Pools 3-6-7, Hamp. Rds.	4.60	4.60

Current Quotations British Coal f.o.b. Port, Gross Tons

Quotations by Cable to *Coal Age*

	Oct. 17	Oct. 24*
Cardiff: Admiralty, large....	23s.6d. @ 24s.	22s.3d. @ 23s.6d.
Steam smalls.....	10s.3d.	10s.3d.
Newcastle: Best steams.....	15s.3d. @ 15s.6d.	15s.3d. @ 15s.6d.
Best gas.....	16s.6d. @ 16s.9d.	16s.6d.
Best bunkers.....	15s. @ 16s.	14s.6d. @ 15s.

* Advances over previous week shown in heavy type; declines in italics.



News Items From Field and Trade



ALABAMA

The byproduct coke plant of the Republic Iron & Steel Co., located at Thomas, which has been in course of construction for the past year, was placed in commission last week. There are fifty-seven ovens and necessary facilities and equipment for the preparation and storing of all the various coal byproducts. The plant is modern to the minute in every way and was constructed by the Koppers Co., of Pittsburgh, Pa.

The Tennessee Coal, Iron & Land Co., Bessemer, is planning the development of a town for its employees, equipped with water works and electric lights.

L. E. Boyette, of Birmingham, is interested in the development of coal lands in Blount County, Ala.

The Brown Lumber Co., with main office at Fayette, is contemplating development of coal mines on its holdings near Tuscaloosa.

ARKANSAS

Preliminary arrangements have been perfected by A. M. Malone and his associates and articles of incorporation will be applied for in a few days by the Ouita Coal and Railroad Co., which will build a railroad line into the old Ouita coal basin and carry on extensive mining operations in that section, which was the scene of the first mining activities in the Russellville field. Officers of the company, which will be capitalized at \$150,000, are: A. M. Malone, president; D. R. Dorente, vice-president; W. D. Brogdon, secretary, and C. E. McKoin, treasurer.

ILLINOIS

B. F. Bliss, of Chicago, was appointed receiver Oct. 7 for the Union Fuel Co., operating mines in Sangamon County. The appointment was made by Judge E. S. Smith, in circuit court, at Springfield.

The properties of the St. Louis Coke & Iron Co., east of Granite City, was bid in at public auction at noon Oct. 20 for \$3,000,000. The successful bidder, C. H. Hand, of New York, represented the holders of the \$6,800,000 first mortgage bonds, \$3,099,000 of preferred stock and 92,000 shares of \$5 par value common stock. It is anticipated that the sale will be approved immediately by the United States District Court at Springfield, so that an early reorganization of the company can be effected. The new company will be incorporated under the laws of either Delaware or

Maryland and have about \$2,000,000 of additional capital. This will finance the installation of a new blast furnace and other improvements to the plant.

KANSAS

James Howat, a miner, brother of Alexander Howat, deposed president of District 14, United Mine Workers, and George Brown, a former miner, were found dead in a house in which they "batched" near Girard, Oct. 21. Several empty whiskey bottles and one containing some liquor indicated that they had drunk poison "hooch," and the coroner considered an inquest unnecessary. Howat was 50 years old. He was born in Scotland. Brown was 70 years old and had not worked for several years because of his age.

A Kansas coal digger, Ludwig Reindhaler, of Croweburg, committed suicide Oct. 16 by tying a stick of dynamite about his neck and lighting a fuse attached to it. Reindhaler was said to have been acting queerly three years.

KENTUCKY

The government last week placed two sixty-car orders for mine-run coal through Louisville jobbers, the Drabelle Yager Coal Co. getting a contract for delivery on the Ohio River at Addison, and the Southern Coal Co., at Owensboro, also for river work. It is reported that the coal was sold on a delivered basis, which would figure about \$1.25 f.o.b. mines. The business was placed under option whereby the buyer can take as much more coal at the same price.

Coal had an important bearing on car-loading by the Louisville & Nashville R.R., which broke all traffic records for August and September and also set its largest day on record, according to President W. L. Mapother. On Oct. 8 7,144 cars were loaded and moved. In August 168,181 cars moved; and September broke that record with 171,165. October is expected to run over 180,000. It is believed that the final quarter of the year will far exceed past records.

MISSOURI

James C. Wilson, president of the Wilson Coal Co., Kansas City, Kan., was fined \$100 in police court in Kansas City, Mo., Oct. 22, on a charge of misrepresenting coal he sold a buyer on the Missouri side of the line. The charge was supported by the Coal Credit & Correct Weights Bureau, of Kansas City, Mo., an association of

retailers organized to promote public confidence in the industry by maintaining a high standard of ethics in the trade. Wilson was accused of delivering Hume (Mo.) coal on an order calling for Cherokee coal. His defense, supported by witnesses, was that "Cherokee" was a name used by the trade to denote a particular vein of coal, and that to be "Cherokee," coal need not come from the Cherokee County (Kansas) field. He charged his arrest was persecution by Missouri dealers to prevent his competition on their side of the line.

Operation has been resumed at the Trenton mine after a period of idleness lasting since last spring. It is expected that near capacity production will be attained within a few weeks.

NEW YORK

The fires of 55 coke ovens of the Hudson Valley Coke & Products Co., Troy, were lighted at 7 a.m., Oct. 18 and after 24 hours of operation more than 1,000 tons of coke had been produced. Full production is expected by Nov. 1, at the latest, when the byproducts plant, producing coal tar, benzol and various other chemicals, is expected to go into operation. The gas produced incidental to the manufacture of the coke is to be sold at wholesale to the utility companies supplying Troy, Albany and Schenectady.

"Earnings of the United States Distributing Corporation and subsidiaries are good and those of one of its principal subsidiaries, Pattison & Bowns, have not been reduced so far by the anthracite suspension," was the statement on Oct. 23 of Harry N. Taylor, president. "Earnings of Pattison & Bowns have held well as a result of storing a large amount of hard coal before Sept. 1, from which deliveries have been made since."

OHIO

Bids will be opened Nov. 16 by J. E. Harper, director of Public Welfare, Oak and Ninth streets, Columbus, for two steel coal bins of 500 tons capacity each and an ash bin of 50 tons capacity for the Hospital for Epileptics at Gallipolis; also for an electric coal elevator with a capacity of 50 tons per hour and a larry to haul the same capacity.

Dumpings at the docks of the Hocking Valley Ry. for the week ending Oct. 21 totaled 210,582 tons. The same docks have handled 6,933,921 tons up to and including Oct. 21 as compared with 5,556,473 tons during the same period.

in 1924. Dumpings at the docks of the New York Central lines for the week ending Oct. 21 were 43,715 tons; or for the entire season up to that date, 2,143,534 tons. Dumpings for the season of 1924 up to Oct. 21 totaled 102,817 tons.

J. P. Brennan, state purchasing agent, who expected to receive bids the latter part of August for approximately 225,000 tons of either nut, pea and slack or run of mine coal for 25 state institutions, has not yet set the date. Mr. Brennan has been buying coal on the open market, rather than on contract, to make sure that strikes will cause no delay in the shipment. At the same time he is getting fuel from 10c. to 30c. per ton cheaper than would be possible on contract. "I will continue to buy on the open market, unless conditions change materially, and prices are reduced," he said. To date about 75,000 tons have been purchased.

The Y. & O. Coal Co. has resumed operations at its No. 1 mine at Amsterdam. The mine was idle for 18 months. Married men were given the first chance at the available jobs.

PENNSYLVANIA

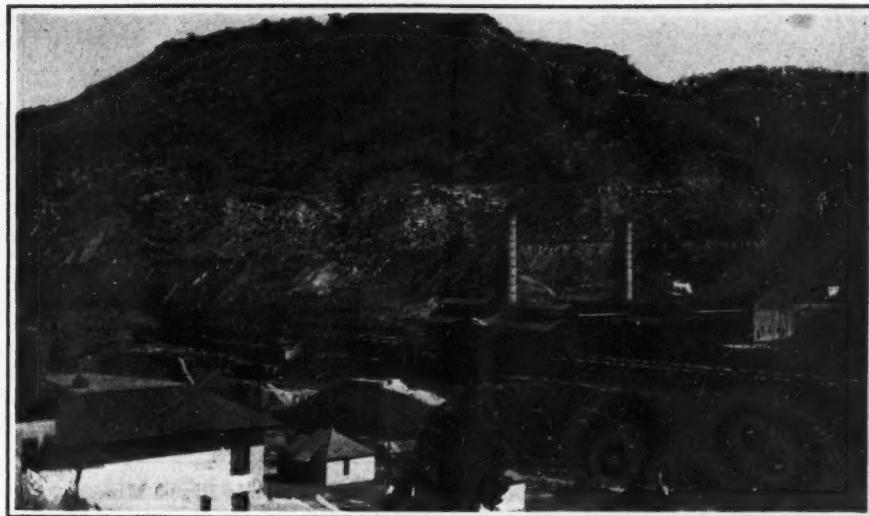
At a recent patriotic meeting held in Scranton under the auspices of the American Constitutional League an attempt was made by leaders of the United Mine Workers to introduce a resolution condemning the courts of West Virginia for injunctions and demanding that the government act in the situation there. The leaders of the meeting sprang the resolution, however, on the ground that it was of a political nature. The resolution was to the effect that the courts of West Virginia have denied the right of free speech to union mine workers.

A contracting company has started work on a pile foundation for a coal tipple at the Ella Mine at Milesville, on the Monongahela River, for the Hillman Coal & Coke Co. Construction is about to start also on a river tipple for Evan I. Brown, at Riverview, 35 miles above the mouth of the Monongahela River.

The Youngstown Sheet & Tube Co. will enlarge its coal mining property at Nemacolin. This mine, developed during the last five years, is now producing an average of 4,500 tons a day with output running as high as 5,000 tons some days. It will be expanded and new equipment purchased for a production of 6,000 tons a day.

Appointment of a fuel administrator to take over and have charge of the distribution of fuel at Erie, owing to the strike of anthracite miners, is being sought by the city's finance director, who plans to sound Governor Pinchot on the subject. While Erie is supplied largely from the bituminous district, the director felt that there would be suffering in the city during the winter.

The new breaker of Madeira, Hill & Co., at Marion Heights, is almost finished and the management hopes to have operations started in it once the strike in the anthracite field has ended.



A Coke Producing Plant in the Hills of New Mexico

These coke ovens, boilers and power house are located in Dawson, N. M., and are owned and operated by the Phelps Dodge Corporation.

This breaker will take the place of two other structures once it begins to operate. The structure is built of concrete and steel throughout, and is equipped with the most modern machinery.

The Buck Ridge mine at Johnson City, said to be one of the most modern in the anthracite valley, is involved in an interesting legal battle. More than a year ago the operation went into the hands of a receiver. About this time it was placed in charge of Madeira, Hill & Co. of Philadelphia, which improved the mine in different ways, replacing old pumps with new electric ones and driving new tunnels to tap rich coal veins. Now it is rumored that other mining interests are using their influence with a Philadelphia banking concern which controls the Buck Ridge operations to gain possession. It is reported that the Madeira-Hill company has been notified of a change in the lease and that injunction proceedings are now contemplated.

Coal companies in West Mahanoy Township have launched proceedings in court in Schuylkill County with the hope of wiping out some of the high paying tax collector and school treasurer jobs in boroughs and townships. The coal companies, by far the heaviest taxpayers in the township, contend in court that it is out of reason for the school treasurer to receive a salary of \$12,000 a year. The operators believe a salary of \$5,000 would be ample and have asked the court to hand down an order to this effect.

The new steel washery at Coleraine, which will replace the abandoned colliery of Van Winkle & Co., is fast assuming definite shape. The new owners are said to be planning heavy production when the mine suspension ends.

The Margaret Coal Mining Co., located in Indiana County, has let a contract to the Fairmont Mining Machinery Co. to erect a rope and button conveyor at its mine.

Maintenance men assert that the coal companies in the Panther Creek region are making heavy reduction in the forces. Operations at the Lansford shops also have been curtailed due to

the mine strike. Usually more than 600 are employed at these shops, but just now the working force does not exceed 200.

A new situation affecting the coal industry in the Pittsburgh district has arisen in the proposed abandonment of the slackwatering project in the Youghiogheny River which would make the stream more readily navigable. The United States Army engineers have suggested that plans for three locks in this river be abandoned and the immediate result has been many objections. There is a coal reserve of 14,000 acres in the lower Youghiogheny valley containing approximately 100,000,000 tons of coal, according to the Pittsburgh Coal Co., one of the principal objectors. The coal company points out that eventually consumers, principally steel companies, all along the Monongahela and Ohio rivers as far as Wheeling, will turn to the Youghiogheny valley for their coal supply.

UTAH

H. H. Calvin, special representative of the United States Fuel Co. for the past two or three years, prior to which he was general salesmanager, has resigned to go to California. He is a son of the vice-president of the Union Pacific System and has been connected with the local fuel company since 1913.

WASHINGTON

The engineering department of the Pacific Coast Coal Co. has announced that the two tunnels at the company's New Black Diamond mine, 20 miles southwest of Seattle, have been connected, and that the mine is expected to commence commercial production early in 1926. When in full working order the mine will produce about 2,000 tons of coal per day. About \$1,000,000 has been spent in this development work since July, 1924. The town around the old mine will be abandoned and accommodations for the men will be provided in the locality of the new operation, which will give employment to about 500 men.



End-Dumping Larry at Pond-Creek Pocahontas Co.'s Big 4 Mine

This West Virginia operation disposes of slate by running cars carrying three and one-half to four tons of rock through the tipple onto an electric car-dumping larry. As this larry does not swing, it can dump over the end only. The track, as shown, is only about 50 ft. long so trolley wires are not in use, the larry being operated by a cable reel.

VIRGINIA

The Virginia Iron, Coal & Coke Co. reports for the quarter ended Sept. 30, 1925, net income of \$61,997 after interest, depreciation and taxes, equivalent after preferred dividend requirements to 30c. a share. This compares with net loss of \$70,264 in the preceding quarter and net loss of \$27,973 in the third quarter of 1924. Net income for the first nine months of 1925 totaled \$209,038, equal to \$1.15 a share, comparing with net loss of \$73,380 in the corresponding period of 1924.

WEST VIRGINIA

The sale of the Coal River & Eastern R.R. to the Chesapeake & Ohio Railway Co. was completed at a meeting of officials of both roads held in Washington on Oct. 15. Negotiations for the sale of the road have been going forward for some time. The Interstate Commerce Commission passed the final order for the sale of the road two weeks ago. This road is owned by the Coal River Collieries Co. It extends ten miles into Boone County between Seth and Prenter.

Fire of unknown origin late on Oct. 16 destroyed the blacksmith shop of the Starford Gas Coal Co. at Brydon, six miles west of Grafton. During a rain-storm the building burst into flames and burned to the ground in a few minutes. Officials said that burning of the shop resembled work of the conspiracy gang that operated in the Brydon section during the first five months of the year.

The Clarksburg District Mining Institute held a meeting Oct. 24, when plans were made for the revival of a mining extension class.

The coal industry was represented by a number of operators and sales agents who carried the message of Southern coal to New England when the visit of certain New England organizations last year was returned between Oct. 11 and 20 by representatives of Virginia, West Virginia and the Carolinas. In the party of West Virginia operators were T. E. Farrell, vice-president of the Pocahontas Fuel Co.; E. E. White,

president of the E. E. White Coal Co.; Major W. P. Tams, Jr., president of the Gulf Smokeless Coal Co.; W. E. E. Koepfer, secretary of the Pocahontas Operators Association, and others. R. H. Gross, president of the New River company, who lives in Boston, and numerous others connected with the smokeless industry joined the party on its arrival in New England.

The Wise Pocahontas Coal Co., Fairmont, has increased its capital from \$50,000 to \$100,000.

Increased production from the mines of eight coal companies operating in Raleigh and Wyoming counties in the Winding Gulf field, is to be made possible, according to an announcement, through a reorganization effected by Pittsburgh and New York capital. The Cory-Mann-George Corporation, of New York, is to be the sales agent for the various companies concerned. Included in the reorganization are the following companies: Sullivan Pocahontas Coal Co., Wood-Sullivan Coal Co., Pickshin Coal Co., Mead-Pocahontas Coal Co., Tommy Creek Coal Co., Raleigh Fire Creek Coal Co., Harty Coal Co., and the Barkers Creek Coal Co. Howard N. Eavenson is to become vice-president and treasurer of the new organization.

The Raleigh-Wyoming Coal Co., Glen Rogers and Edwight, is distributing a Safety-First button 1 1/4 in. in diameter in red, white and blue, "the colors of our national flag, believing that a careful man is at the same time a good citizen."

The Lovejoy Coal Co., composed of Masontown and Uniontown (Pa.) interests, has purchased the mine of the A. L. Black Coal Co. at Maudsville, near Morgantown, which consists of 30 acres of Sewickley coal land.

A sudden call for 3-in. lump coal came to the Northern West Virginia coal fields last week. Some of this coal is moving to the piers, but other shipments are being made to Jersey City and as far north as New Hampshire by rail, according to reports. The shortage of anthracite has created a demand for this size.

The American Coal Co. of Allegany County, McComas, is installing five type Y American pneumatic coal separators at its Crane Creek plant to treat coal passing 1-in. screens as one size with a portion of the dust removed through aspiration. As a result of this additional installation all 1 1/2-in. screens, or one-third of the total in the plant, will be removed. Two older type separators also will be removed, which with the screens will partly equip an additional plant. After this change has been made the coal company will treat all coal passing 2-in. screens with two less sizes than heretofore. The plant will have a capacity of 300 tons per hour when the work has been completed. The American Coal Cleaning Corp., Welch, is supplying the separators and the coal company is erecting them.

J. W. McCarthy has been arrested in New York City and is held under \$5,000 bond to appear in federal court at Charleston on Nov. 17, it has been announced by W. C. Volkerdin, post office inspector. McCarthy, who operated the Kanawha-Hazard Coal Co., with general offices in the Moore Building at Charleston, is charged with using the mails to defraud. It is alleged that McCarthy represented to coal operators that he had an unlimited market for coal of all kinds and would place orders with various companies for coal to be delivered to consumers. After he secured orders he would have the coal shipped to the consumers, collect for the shipment and then fail to pay the operator for his product, according to the authorities.

WYOMING

About 100 members of the United Mine Workers in Rock Springs have enrolled in the Rock Springs Labor College, which started class work Oct. 20. Six courses, including economics, civil government, journalism and public speaking, are offered. Co-operation between ministers of various Protestant churches and the labor leaders make this college possible.

Despite a recent heavy increase in production, the Rock Springs district coal output for September was approximately 20,000 tons short of the same period in 1924.

Following its policy of making home owning possible for its men, the Union Pacific Coal Co. is offering more lots for sale in the Brooks and Clark additions to Rock Springs. Recently the company agreed to deed to the City of Rock Springs a three-acre tract in the center of the city for the creation of a city park. The people who have been living in this district will be given preference in the purchase of the proffered lots. Sections of the former course of Bitter Creek also have been deeded to Rock Springs and when the filling in process is completed, will form salable lots and streets. The creek has been changed from a course through the center of the city to the northern edge, traversing coal and railroad company ground.

CANADA

The house of William Hopkins, in the village of Newcastle in the Drumheller coal district of Alberta, was wrecked by an explosion on the night of Oct. 15. A stick of dynamite with a fuse attached had evidently been used. Hopkins is a coal miner and had worked at the A. B. C. mine during the strike and was quite active in the United Mine Workers organization. Some material was stolen from the Newcastle powder house two days before and this is apparently the use to which it was put. An investigation is being made by the authorities and the miners belonging to the U. M. W. A. have appealed to the federal Minister of Labor and the Attorney General of Alberta asking for protection from further outrages.

Traffic

Rates to Cement Mills Put on Parity

The Interstate Commerce Commission has ordered railroads hauling bituminous coal from the Pittsburgh-Youghiogheny, West Virginia, Meyersdale and Cumberland-Piedmont districts to Union Bridge, Md., via the Western Maryland direct and via the Baltimore & Ohio and Western Maryland railroads through Cherry Run, W. Va., to apply rates to that destination no higher than the charges contemporaneously maintained by the same carriers to Security, Md.

Tidewater Portland Cement Co. et al vs. Cumberland & Pennsylvania R.R. Co. et al (mimeographed report). The principal complainant, a cement mill, pointed out that the existing adjustment forced it to pay 51c. per ton more on coal from the Cumberland-Piedmont and Meyersdale regions than did its competitors at Security, 39 miles less distant. At the same time the Commission declined to disturb general group interrelationships or to find the rates to Union Bridge per se unreasonable.

Demurrage at Mines Outlawed

The attempt of the Tennessee R.R. to charge demurrage on empty cars placed at the mines for coal loading and on cars held under load awaiting billing instructions has come to grief. The Interstate Commerce Commission, in a mimeographed opinion in I. & S. Docket 2443, *Demurrage on Coal and Coke*, has ordered the carrier to cancel tariffs under suspension, which excepted such cars from the exemption provided in the Uniform Demurrage Code. The carrier sought to justify the exception to the general exemption on the ground that per diem charges on foreign equipment held at the mines were a serious drain upon its financial resources and further alleged that operators, recognizing this, had agreed several years ago to reimburse it for such car rental when cars were held over 48 hr. following the first 7 a.m. after placement. Refusal of the Roach

Creek Coal Co. to continue such payments led to the filing of the tariff under suspension.

"Although respondent (carrier) states that the proposed schedule was published for the sole purpose of recovering its car hire cost on cars under load," concludes the Commission, "It would be applicable to all cars. In other words, it would have the effect of largely offsetting respondent's cost of car hire by assessing shippers an amount equal thereto beyond a certain time. Respondent is under obligation to furnish the equipment necessary for the transportation of traffic tendered to it, and if it does not possess such equipment the charges paid for the rental thereof cannot be considered as an item of expense which is not included in the rate. * * * The exception here proposed has no apparent purpose except to transfer respondent's car-hire costs to the coal operators."

Tombstone Rates Approved

Rates on bituminous coal and coke from mines in Colorado and New Mexico, groups 1, 2, 3 and 4, and from Albuquerque, San Antonio and Gallup, N. M., to Tombstone, Ariz., are not unreasonable, holds the Interstate Commerce Commission in a recent mimeographed opinion dismissing the complaint in *Harry E. Macia v. A. T. & S. F. Ry. Co. et al.* Complainant had sought the application of main-line points maintained at Fairbanks to Tombstone, located on a branch-line of the Southern Pacific 9 miles distant from Fairbanks. The differential against Tombstone is 70c. per ton.

Obituary

Warren S. Lee, 72, veteran merchant, banker and president of the Russett Coal Co., operating mines in the Buckhorn district of Cambria County, and who also had a hand in the development of the Wopsonock district some years ago, died at his home in Altoona Oct. 18.

Senator William Roche, of Halifax, N. S., died on Oct. 19, at the age of 83 years after an illness of several months. He was extensively engaged in the steamship and coal business and was one of the prominent business men of Halifax, where he was born and spent most of his life. He represented Halifax in the Canadian House of Commons for some years and in 1910 was appointed a member of the Senate.

Industrial Notes

The Robert June Engineering Management Organization, of Detroit, Mich., has acquired control of the Electric Flow Meter Co., at Kansas City, Mo., formerly the Hypero-Electric Flow Meter Co., of Chicago, and will henceforth operate the business under its own management with executive offices at 8835 Linwood Ave., Detroit. Robert June becomes president of the company. J. M. Nalman, formerly general manager, becomes vice-president, consulting and chief engineer, with Major W. W. Burden, of the Robert June Organization, as treasurer.

A direct factory branch has been opened in Birmingham by Fairbanks-Morse & Co., with offices in the Birmingham Athletic Club Building, Fourth Avenue and Twenty-third Street, North. A large warehouse will be established for the distribution of Diesel engines, electric pumps, motors,

domestic light and water plants, gasoline engines and feed mill machinery. M. B. Brister, formerly located in New Orleans, will be the local manager.

The Climax Engineering Co., Clinton, Iowa, announces the appointment of the Coast Machinery Corporation, 829 Folsom St., San Francisco, Calif., as sales representative for California. Other new agencies are as follows: The George W. Whitehead Co., 61 The Terrace, Buffalo, N. Y.; Edward C. Dingman, 1005 Keefer Building, Montreal, Can.; Harvard Turnbull & Co., Ltd., 912 Excelsior Life Building, Toronto, Ont.; the Advance Contractor Repair Co., 1332 W. Lake Street, Chicago, Ill.; the Mine & Smelter Supply Co., 121 West Second St., Salt Lake City, Utah; McDonald & Burman, Jacksonville, Fla.

The Electric Controller & Mfg. Co. announce the appointment of Elcher & Bratt, Seattle, as representatives for the sale of E. C. & M. control equipment in Oregon, Washington, Alaska, and the Panhandle district of Idaho. Elcher & Bratt also represent in their territory the Pittsburgh Transformer Co., Jewell Electric Instrument Co., and the Electric Power Equipment Corporation.

At a reorganization meeting of the board of directors of the Cincinnati Electrical Tool Co., Cincinnati, Ohio, the following officers were elected: Joseph Wolf, president and treasurer; R. K. LeBlond, vice-president; Edw. G. Schultz, secretary. This company manufactures a large variety of portable electric drills, grinders and buffers, has branch offices in all the large cities and also is represented in the principal foreign countries. Plans are under way to move into larger quarters soon and expand the business in a general way.

The Diamond Power Specialty Corporation of Detroit, announces that the territory of the Lathrop-Trotter Co., 733 Union Trust Bldg., Cincinnati, Ohio, which has been sales representative for the Diamond Power Specialty Corp. in the Cincinnati territory for many years, has been extended to take in Indianapolis and adjacent territory in central and southern Indiana.

Consolidation of the Weir Frog & Switch Co., to be known as the Weir Kilby Corporation, is announced. O. DeG. Vanderbilt, Jr., is president of the company; E. M. Kilby, first vice-president, and J. K. Lansdowne, vice-president. Sales offices and plants are at Cincinnati, Ohio, and Birmingham, Ala.

The General Electric Co. has moved its Birmingham (Ala.) office from the Brown-Marx Building to the fourth floor of the new twelve-story office building of the Alabama Power Co., Sixth Avenue and Eighteenth Street, North.

Association Activities

D. H. Morton was elected president of the Kanawha Coal Operators Association by its directors after the directors had been re-elected at the annual meeting of the association held at Charleston W. Va., Oct. 15. Mr. Morton was advanced from the vice-presidency he held last year, succeeding John Laing, of Charleston, as president. E. O. Dana was elected vice-president and John L. Dickinson and D. C. Kennedy were re-elected treasurer and secretary respectively. President Morton, W. M. Wiley and F. O. Harris were chosen as members of the executive board. The board of directors consists of Mr. Laing, Mr. Dana, Mr. Wiley, Mr. Harris, C. A. Cabell, Holmes Morton, W. C. Mitchell, J. L. Warner and E. M. Merrell.

Coal Operators Association will hold a combined annual members' meeting, golf tournament, banquet and efficiency meeting in Knoxville, Tenn., Nov. 20. The board of directors, with C. W. Henderson, president, will meet at the association headquarters in the Bankers Trust Building, followed by the general members' meeting and annual election of officers at 10:30 a. m. At 2 p. m. the Southern Appalachian Efficiency Association, composed of the mine superintendents and foremen, will meet. In the afternoon a golf tournament, arranged by Victor N. Hacker, will be held at the Cherokee Country Club, where the banquet will be held at 7 p. m. with Judge H. B. Lindsay as toastmaster. Transportation and other officials of the railroads serving this field will be guests at the banquet.

Coming Meetings

Canadian Institute of Mining and Metallurgy. Annual western meeting, Nov. 3-5, Winnipeg, Manitoba, Can. Secretary, George C. Mackenzie, Drummond Bldg., Montreal, Que., Can.

Illinois Mining Institute. Fall meeting, Nov. 6 and 7 at West Frankfort, Ill. Secretary, Frank F. Tirre, St. Louis, Mo.

Harlan County Coal Operators' Association. Annual meeting, Nov. 18, at Harlan, Ky. Secretary, E. R. Clayton, Harlan, Ky.

American Society of Mechanical Engineers. Annual meeting at New York City, Nov. 30-Dec. 3. Secretary, Calvin W. Rice, 29 West 39th St., New York City.

Fourth National Exposition of Power and Mechanical Engineering. Nov. 30 to Dec. 5, at Grand Central Palace, New York City.

Coal Mining Institute of America. Annual meeting, Dec. 9-11, Pittsburgh, Pa. Secretary, H. D. Mason, Jr., P. O. Box 604, Ebensburg, Pa.

American Mining Congress. Twenty-eighth annual convention, Dec. 9-11, Washington, D. C. Secretary, J. F. Callbreath, Munsey Bldg., Washington, D. C.

New Companies

The Rogers Coal Co., Drakesboro, Ky., capital \$25,000, has been incorporated by C. A. Rogers, I. C. Rogers, and Edgar Rogers.

The Janney Coal Mining Co., Inc., New York City, has been chartered at Albany, N. Y., with \$25,000 capital, all subscribed, to operate coal mines. G. M. Janney, Robert R. Schote, 1 Broadway, and G. T. Goldthwaite, 20 East 35th St., New York City, are directors and subscribers.

The Tar Distilling Corporation, New York City, has been chartered at Albany, N. Y., with capital of 1,000 shares of no par value, to produce coal, coke and coal tar, by James H. Tully, N. P. Callaghan and Wallace Ingraham, of 25 Broad St., New York City.

The Muir Pratt Coal Co. has been chartered by W. C. Muir and Andrew Dunlap, 310 42d St., Birmingham, Ala.

The Carnall Coal Co., capital \$15,000, has been incorporated by Wm. McKinnin and Walter Cobb, of Fort Smith, Ark.

The New Garland Pocahontas Coal Co., Bluefield, W. Va., has been chartered by S. N. Huffard and Kenneth C. Patty.

The Logan-Winifred Coal Co., Logan, W. Va., with a capital of \$25,000, has been incorporated by G. R. Claypool and G. W. Raile.

The White Star Coal Co. of Cincinnati, Ohio, was incorporated under the Ohio State laws on Oct. 16 and will be directed by Louis H. Stone as general manager. Stone until Sept. 1 was general manager of the Southern Coal & Coke Co. Mines at White Star, Mathei, Hamby and Adelia, Ky., are in the group for which this company will be the distributing outlet.

The Oxita Coal & Railway Co. has been formed at Russellville, Ark., with A. M. Maline as president to develop coal land in the Russellville region.

The Republic Coal Co. of Mulberry, Kan., has been granted a Kansas charter. The capitalization is \$30,000. The incorporators are J. A. Holland, Silas James and A. E. Ginther, all of Mulberry. The company last August purchased the electric shovel and holdings of W. P. Kelley, of Pittsburg, and since then has been producing 200 tons a day on the 200-acre lease, which is near Mulberry.

Trade Literature

Heisler Locomotive Works, Erie, Pa., has issued a new bulletin on **Haulage**, divided into sections according to the different industries served. Increases in haulage capacity from 60 to 100 per cent are described. The bulletin contains 18 pp.; 8½ x 11 in.; illustrated.

The D. O. James Mfg. Co., Chicago, Ill., announces its new general catalog No. 99, of 288 pp., covering its complete line of products, including gears, speed reducers and couplings. It is well illustrated and contains general engineering data of interest to engineers, designers and purchasers of transmission equipment.

New Equipment

Double Insulation Improves Section Insulator

Long life, double insulation, bronze arcing tips and renewable underrun are the outstanding features of the new section insulator manufactured by the Westinghouse Electric & Manufacturing Co.

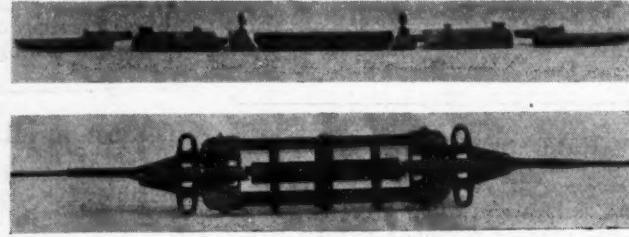
Section insulators should be capable of breaking a motor-load current up to

gaps is particularly effective because it has bronze arcing tips of high tin content on both sides—an entirely new feature in air gap insulation. The skewed air gaps will break a current under all weather conditions. They have ample blow-out surface.

Long life of the insulator is assured by its sturdy construction. The main body of the insulator is made of such material that it will last indefinitely.

Increases Its Utility

Views of Insulator showing double insulation in form of air gaps and hickory runner.



750 amp. and 650 volts under all conditions without holding the arc, and should also insulate trolley lines from each other and from the ground, up to 750 volts without noticeable current leaks, under all weather conditions. This newly designed section insulator meets these requirements through the use of double insulation, a hickory runner and two air gaps. It has 8 in. of minimum runner insulation. It is claimed that this hickory runner is admirable for its special use, and in addition, is able to withstand severe weather conditions due to the treatment that it undergoes in construction. The additional insulation in the form of air

End castings are made of high grade malleable iron, thoroughly cleaned, treated and zinc flooded. All bolts and studs are made of phosphor bronze, while end clamps and arcing tips are of bronze with a high tin content.

Smooth underrun is another feature of this new design. The complete underrun can be replaced without removing the insulator from the line. In fact all wearing parts can be replaced by merely removing two hexagon nuts, and without disturbing suspension spans, trolley wires or insulator bodies. Bayonet approaches help prevent hammer blows as the trolley wheel enters the insulator.

Recent Patents

System for Handling Coal, Ashes, etc.; 1,543,433. Wm. E. Hale, Fort Washington, Pa., assignor to the R. H. Beaumont Co., Philadelphia, Pa. June 23, 1925. Filed Nov. 9, 1923; serial No. 673,693.

Cutter Head for Coal-Cutting Machines; 1,543,516. Thomas E. Pray, Chicago, Ill., assignor to the Goodman Mfg. Co., Chicago, Ill. June 23, 1925. Filed Nov. 3, 1921; serial No. 512,453.

Coal-Handling Plant; 1,543,627. Russell W. Stem, Bethlehem, Pa. June 23, 1925. Filed March 15, 1924; serial No. 699,561.

Dusting Apparatus; 1,543,916. Lee B. Green, Lakewood, Ohio, assignor to the Globe Machine & Stamping Co., Cuyahoga, Ohio. June 30, 1925. Filed Sept. 8, 1923; serial No. 661,585.

Pulverized Coal Feeder; 1,543,936. Archibald S. McMillan, St. Louis, Mo., and George W. Whipple, Cherryvale, Kan. June 30, 1925. Filed Oct. 21, 1921; serial No. 509,358.

Tire for Mine-Locomotive Wheels; 1,543,971. J. N. Abbott, Christopher, Ky. June 30, 1925. Filed April 13, 1925; serial No. 22,893.

Mining Machine; 1,544,071. Morris P. Holmes, Claremont, N. H., assignor to Sullivan Machinery Co., Chicago, Ill. June 30, 1925. Filed July 21, 1919; serial No. 312,346. Renewed Nov. 20, 1924.

Mining Machine; 1,544,073. Robt. E. Osgood, Claremont, N. H., assignor to Sullivan Machinery Co., Chicago, Ill. June 30, 1925. Filed June 13, 1921; serial No. 477,045.